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Canada Ontario

REPORT ON THE 1984 INDUSTRIAL DISCHARGES INTO THE GREAT LAKES BASIN

- ONTARIO -

June 20, 1986

Canada-Ontario Agreement Respecting Great Lakes Water Quality

L'Accord Canada-Ontario relatif à la qualité de l'eau dans les Grands Lacs

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REPORT ON DIRECT INDUSTRIAL DISCHARGES
INTO THE GREAT LAKES BASIN
ONTARIO 1984

1. INTRODUCTION

This report was prepared by the Ministry of the Environment for submission to the International Joint Commission to meet the requirements of Article VI 1(c) of the 1978 Great Lakes Water Quality Agreement (G.L.W.Q.A.). The Agreement states that this inventory, prepared and revised annually, shall include compliance schedules and status of compliance with monitoring and effluent restrictions. The report was developed in accordance with the nomenclature, definitions and objectives of the Agreement.

The effluent loadings and loading limits of 105 individual industrial plants, that meet the Criteria for Source Selection (see section 2), are included in the report. The majority of Ontario's approximate 11,000 industrial plants are not included because they discharge into municipal sewers and the wastewater is treated by the municipality.

2. CRITERIA FOR SOURCE SELECTION

The plants included in this inventory were selected according to the following criteria, adapted from an IJC Task Force (comprising Canadian and United States representatives from federal, state and provincial agencies):

1) The point source discharges directly or via a tributary stream into an "Area of Concern"* (as identified by the IJC) and contains a pollutant that contributes to the concern.

2) The effluent contains a persistent toxic substance or radioactive material as defined in the Agreement.

3) The point source discharges more than 3 kilograms per day of total phosphorus.

4) The effluent contains hazardous** or other pollutants above a minimum rate per day. These pollutants are Total Suspended Solids at or above 10 kilograms per day, Solvent-extractables at 10 kilograms or more per day, and Ammonia-Nitrogen at 6 kilograms or more per day.

Specifically, the following plants are included:

1. All Ontario plants that discharge a persistent toxic substance or radioactive material.

2. All Ontario Hydro plants because they discharge large quantities of hot once-through cooling water.

3. All plants within 70 kilometres of the Great Lakes that discharge more than 4,500 cubic metres of effluent per day. Table 2 presents all plants that discharge above 4,500 cubic metres per day; the plants are ordered in descending volume. Table 2(a) shows the discharge volume from all the other plants in other inventory. The Ministry through another document to the IJC reports the effluent loadings for all municipalities that discharge more than 4,500 cubic metres of effluent.

* Environmental quality in an Area of Concern is degraded and the beneficial uses of the water, animal and plant life may be adversely affected.

** G.L.W.Q.A., Annex 4(4). A hazardous polluting substance is defined as any element or compound which, if discharged in any quantity into or upon receiving waters or adjoining shorelines, would present an imminent and substantial danger to public health or welfare. Public health and welfare includes, but is not limited to, human health and the conservation and protection of flora, fauna, public and private property, shorelines and beaches.

Table 1 (page 3) shows how the selected point sources meet these criteria.

	A	B	C	D	E	F	G	H	I
1					TABLE 01				
2									
3					SOURCE SELECTION CRITERIA				
4					1984				
5									
6	COMPANY NAME	LOCATION	PAGE	CONTRIBUTES TO	CONTAINS PERSISTENT TOXIC,	CONTAINS OVER 3	CONTAINS MINIMUM	EFFLUENT IS MORE	LESS THAN
7			NUMBER	AREA OF CONCERN	HAZARDOUS SUBSTANCE OR	KILOGRAMS PER DAY	CONVENTIONAL	THAN 4,500	THAN 70 KILOMETRES
8					RADIOACTIVE MATERIAL	PHOSPHORUS	POLLUTANT	CUBIC METRES	FROM MAJOR
9								PER DAY	WATERBODY
10	ABITIBI-PRICE INC. (FT. WILLIAM DIV.)	THUNDER BAY	A-5	X	X	X	X	X	X
11	ABITIBI-PRICE INC. (PROVINCIAL PAPERS DIV.)	THUNDER BAY	A-6	X	X	X	X	X	X
12	ABITIBI-PRICE INC. (THUNDER BAY DIV.)	THUNDER BAY	A-7	X	X	X	X	X	X
13	ALGOMA STEEL CORPORATION LTD.	SAULT STE. MARIE	A-11	X	X		X	X	X
14	ALLIED CHEMICAL CANADA INC.	AMHERSTBURG	A-47	X	X		X	X	X
15	AMEROCK INC.	MEAFORD	A-26		X	X	X		X
16	ATLAS STEEL COMPANY	WELLAND	A-66	X	X		X	X	X
17	B. F. GOODRICH	NIAGARA FALLS	A-69	X			X		X
18	BCL (FORMERLY TCF)	CORNWALL	A-103	X	X		X	X	X
19	BEAVER WOOD FIBRE COMPANY	THOROLD	A-78		X		X	X	X
20	BORG-WARNER CHEMICALS LTD.	COBOURG	A-89			X	X		X
21	CAN OXY-DUREZ	FORT ERIE	A-62	X					X
22	CANADA STARCH CO. LTD.	CARDINAL	A-100	X			X		X
23	CANADIAN CANNER'S LTD.	ST. DAVID'S	A-74				X		X
24	CANADIAN INDUSTRIES LTD.	CORNWALL	A-105	X	X				X
25	CANADIAN INDUSTRIES LTD.	COURTRIGHT	A-43	X	X	X	X	X	X
26	CANADIAN SALT COMPANY LTD.	WINDSOR	A-45	X	X			X	X
27	CELANESE CANADA LTD.	ERNESTOWN TWP.	A-96				X	X	X
28	COURTAULDS LTD.	CORNWALL	A-102	X	X		X	X	X
29	CYANAMID CANADA LTD. (WELLAND PLANT)	NIAGARA FALLS	A-73	X	X	X	X	X	X
30	CYANAMID CANADA LTD.	NIAGARA FALLS	A-68	X	X		X	X	X
31	DENISON MINES LTD.	ELLIOT LAKE	A-13	X	X		X	X	X
32	DOFASCO	HAMILTON	A-82	X	X		X	X	X
33	DOMTAR CHEMICALS LTD.	GODERICH	A-30		X			X	X
34	DOMTAR CONSTRUCTION MATERIALS LTD.	THOROLD	A-81		X		X		X
35	DOMTAR FINE PAPERS	CORNWALL	A-104	X	X		X	X	X
36	DOMTAR FINE PAPERS	ST. CATHARINES	A-76		X		X	X	X
37	DOMTAR PACKAGING LTD.	TRENTON	A-93		X		X		X
38	DOMTAR PACKAGING LTD.	RED ROCK	A-8	X	X	X	X	X	X
39	DOW CHEMICAL CANADA LTD.	SARNIA	A-31	X	X		X	X	X
40	DUPONT CANADA INC. (TETRA ETHYL LEAD)	MAITLAND	A-97	X	X			X	X
41	DUPONT CANADA INC. (NYLON INTERMEDIATES)	MAITLAND	A-98	X			X	X	X
42	DUPONT CANADA INC.	CORUNNA	A-38	X	X			X	X
43	E. B. EDDY FOREST PRODUCTS LTD.	ESPANOLA	A-17	X	X		X	X	X
44									
45									
46									

	A	B	C	D	E	F	G	H	I
47					TABLE 01 (CONTINUED)				
48									
49	COMPANY NAME	LOCATION	PAGE	CONTRIBUTES TO	CONTAINS PERSISTENT TOXIC,	CONTAINS OVER 3	CONTAINS MINIMUM	EFFLUENT IS MORE	LESS THAN
50			NUMBER	AREA OF CONCERN	HAZARDOUS SUBSTANCE OR	KILOGRAMS PER DAY	CONVENTIONAL	THAN 4,500	THAN 70 KILOMETRES
51					RADIOACTIVE MATERIAL	PHOSPHORUS	POLLUTANT	CUBIC METRES	FROM MAJOR
52								PER DAY	WATERBODY
53	ELDORADO NUCLEAR LTD.	PORT GRANBY	A-91		X				X
54	ELDORADO NUCLEAR LTD.	WELCOME	A-90		X				X
55	ELDORADO NUCLEAR LTD.	PORT HOPE	A-92		X		-	X	X
56	ESSO CHEMICALS CANADA LTD.	SARNIA	A-32	X	X		X	X	X
57	ESSO PETROLEUM CANADA	SARNIA	A-33	X	X		X	X	X
58	ETHYL CANADA INC.	CORUNNA	A-39	X	X			X	X
59	FALCONBRIDGE LTD.	ONAPING FALLS	A-19		X				
60	FALCONBRIDGE LTD.	FALCONBRIDGE	A-18		X	X	X	X	
61	FALCONBRIDGE LTD. (MOOSE LAKE)	FALCONBRIDGE	A-20		X		X	X	
62	FIBERGLAS CANADA LTD.	SARNIA	A-34	X				X	X
63	FLEET MANUFACTURING COMPANY LTD.	FORT ERIE	A-34	X	X				X
64	FORD MOTOR COMPANY OF CANADA LTD.	OAKVILLE	A-84				X	X	X
65	FORD MOTOR COMPANY OF CANADA LTD.	NIAGARA FALLS	A-70	X		X	X		X
66	FORD MOTOR COMPANY OF CANADA LTD.	ST. THOMAS	A-50		X	X	X	X	X
67	FORD MOTOR COMPANY OF CANADA LTD.	WINDSOR	A-46	X	X		X	X	X
68	FRASER INC.	THOROLD	A-80		X		X	X	X
69	GENERAL MOTORS OF CANADA LTD.	ST. CATHARINES	A-75		X		X	X	X
70	GNB BATTERIES CANADA LTD.	FORT ERIE	A-63	X	X				X
71	GREAT LAKES FOREST PRODUCTS LTD.	THUNDER BAY	A-1	X	X	X	X	X	X
72	GULF CANADA PRODUCTS LTD.	MISSISSAUGA	A-87	X	X		X	X	X
73	H. J. HEINZ COMPANY OF CANADA LTD.	LEAMINGTON	A-48			X	X	X	X
74	INCO LTD. (COPPER CLIFF CREEK)	SUDBURY	A-22	X	X		X	X	X
75	INCO LTD. (GARSON MINE)	SUDBURY	A-21	X	X		X		
76	INCO LTD. (NOLIN CREEK)	SUDBURY	A-21	X	X		X	X	
77	INCO LTD. SULPHUR PRODUCTS DEPT.	SUDBURY	A-23	X	X				X
78	INCO METALS LTD.	PORT COLBORNE	A-61	X	X		X	X	X
79	INTERNATIONAL MINERALS AND CHEMICALS	DUNNVILLE	A-60		X	X	X	X	X
80	J. M. SCHNEIDER INC.	AYR	A-59				X		
81	JAMES RIVER MARATHON LTD.	MARATHON	A-10	X	X	X	X	X	X
82	KIMBERLY CLARK OF CANADA LTD.	ST. CATHARINES	A-79				X	X	X
83	KIMBERLY CLARK OF CANADA LTD.	TERRACE BAY	A-9	X	X	X	X	X	X
84	KRAFT FOODS LTD.	INGLESIDE	A-101	X		X	X		X
85	MACMILLAN BLOEDEL LTD.	STURGEON FALLS	A-25		X		X	X	
86	NITROCHEM INC.	MAITLAND	A-99	X	X				X
87	NORTON COMPANY	NIAGARA FALLS	A-72	X			X	X	X
88	OGILVIE MILLS LTD.	THUNDER BAY	A-2	X			X		X
89	OMSTEAD FOOD LTD.	WHEATLEY	A-49			X	X		X
90									
91									
92									

	A	B	C	D	E	F	G	H	I
93					TABLE D1 (CONTINUED)				
94									
95	COMPANY NAME	LOCATION	PAGE	CONTRIBUTES TO	CONTAINS PERSISTENT TOXIC	CONTAINS OVER 3	CONTAINS MINIMUM	EFFLUENT IS MORE	LESS THAN
96			NUMBER	AREA OF CONCERN	HAZARDOUS SUBSTANCE OR	KILOGRAMS PER DAY	CONVENTIONAL	THAN 4,500	THAN 70 KILOMETRES
97					RADIOACTIVE MATERIAL	PHOSPHORUS	POLLUTANT	CUBIC METRES	FROM MAJOR
98								PER DAY	WATERBODY
99	ONTARIO HYDRO (DOMESTIC TREATMENT)	TIVERTON	A-27						X
100	ONTARIO HYDRO (HEAVY WATER PLANT)	TIVERTON	A-28					X	X
101	ONTARIO HYDRO (THERMAL DATA)	TIVERTON	A-29					X	X
102	ONTARIO HYDRO (NANTICOKE)	NANTICOKE	A-52		X		X	X	X
103	ONTARIO HYDRO (THERMAL DATA)	NANTICOKE	A-53		X		X	X	X
104	ONTARIO HYDRO (LAKEVIEW)	TORONTO	A-88					X	X
105	ONTARIO HYDRO (LAMBTON)	COURTRIGHT	A-42	X					
106	ONTARIO HYDRO (THUNDER BAY)	THUNDER BAY	A-4	X				X	X
107	ONTARIO PAPER COMPANY INC.	THOROLD	A-79		X		X	X	X
108	PETRO CANADA PRODUCTS LTD.	OAKVILLE	A-85	X	X		X		X
109	PETROSAR LTD.	SARNIA	A-35	X	X		X	X	X
110	POLYSAR LTD.	SARNIA	A-36	X	X		X	X	X
111	REICHHOLD CHEMICALS LTD.	THUNDER BAY	A-13	X	X		X		X
112	RIO ALGOM LTD. (PANEL MILL)	ELLIOT LAKE	A-14		X		X	X	X
113	RIO ALGOM LTD. (QUIRKE MILL)	ELLIOT LAKE	A-15		X		X	X	X
114	RIO ALGOM LTD. (STANLEIGH MILL)	ELLIOT LAKE	A-6		X		X	X	X
115	SHELL CANADA LTD.	CORUNNA	A-41	X	X		X	X	X
116	SILKNIT LTD. (CLOSED OCT/84)	CAMBRIDGE	A-55				X		
117	SOHIO	NIAGARA FALLS	A-73	X	X		X	X	X
118	SOLARWARE	CAMBRIDGE	A-56		X				
119	ST. MARYS PAPER INC.	SAULT STE. MARIE	A-12	X			X	X	X
120	STANLEY WORKS LTD.	NEW HAMBURG	A-58		X				
121	STELCO INC.	HAMILTON	A-83	X	X		X	X	X
122	STELCO INC. LAKE ERIE WORKS	NANTICOKE	A-54		X	X	X	X	X
123	STELCO PAGE HERSEY WORKS	WELLAND	A-67		X		X	X	X
124	STELCO WELLAND TUBE WORKS	WELLAND	A-65	X	X				X
125	STRATHCONA PAPER COMPANY	CAMDEN EAST TWP.	A-95				X		X
126	SUNCOR SUNOCO GROUP	SARNIA	A-37	X	X		X	X	X
127	TEND-R-FRESH POULTRY	PETERSBURG	A-57				X		
128	TEXACO CANADA LTD.	PORT CREDIT	A-86		X		X	X	X
129	TEXACO CANADA LTD. (NANTICOKE REFINERY)	JARVIS	A-51		X				X
130	TRENT VALLEY PAPERBOARD MILLS	TRENTON	A-94				X		X
131	UNION CARBIDE CANADA LTD.	CORUNNA	A-40	X	X		X		X
132	WINDSOR BUMPER	WINDSOR	A-44	X	X		X		X

Table 2

COMPANY NAME	LOCATION	DISCHARGE M3/DAY
ONTARIO HYDRO (LAKEVIEW)	TORONTO	101,120,000
ONTARIO HYDRO (LAMBTON)	COURIGHT	81,400,000
ONTARIO HYDRO (THUNDER BAY)	THUNDER BAY	31,135,000
STELCO INC.	HAMILTON	1,183,000
DOFASCO	HAMILTON	804,000
DOW CHEMICAL CANADA LTD.	SARNIA	742,000
ALGOMA STEEL CORPORATION LTD.	SAULT STE. MARIE	503,700
ONTARIO HYDRO (HEAVY WATER PLANT)	TIVERTON	360,600
CANADIAN INDUSTRIES LTD.	COURTRIGHT	288,000
GREAT LAKES FOREST PRODUCTS LTD.	THUNDER BAY	269,000
POLYSAR LTD.	SARNIA	255,400
SHELL CANADA LTD.	CORUNNA	234,700
ESSO PETROLEUM CANADA	SARNIA	215,700
ALLIED CHEMICAL CANADA INC.	AMHERSTBURG	138,900
KIMBERLY CLARK OF CANADA LTD.	TERRACE BAY	136,000
DOMTAR FINE PAPERS	CORNWALL	122,000
GENERAL MOTORS OF CANADA LTD.	ST. CATHARINES	120,900
ONTARIO PAPER COMPANY INC.	THOROLD	119,000
SUNCOR SUNOCO GROUP	SARNIA	109,700
INCO LTD. (COPPER CLIFF CREEK)	SUDBURY	102,000
DOMTAR PACKAGING LTD.	RED ROCK	98,800
E. B. EDDY FOREST PRODUCTS LTD.	ESPANOLA	94,300
FORD MOTOR COMPANY OF CANADA LTD.	WINDSOR	90,700
JAMES RIVER MARATHON LTD.	MARATHON	66,000
ONTARIO HYDRO (TGS)	NANTICOKE	63,800
ABITIBI-PRICE INC. (PROVINCIAL PAPERS DIV.)	THUNDER BAY	49,900
DUPONT CANADA INC.	CORUNNA	49,660
ABITIBI-PRICE INC. (THUNDER BAY DIV.)	THUNDER BAY	34,840
ETHYL CANADA INC.	CORUNNA	33,900
FALCONBRIDGE LTD.	FALCONBRIDGE	33,500
FALCONBRIDGE LTD.(MOOSE LAKE)	FALCONBRIDGE	32,600
CYANAMID CANADA LTD.	NIAGARA FALLS	32,400
STELCO INC. LAKE ERIE WORKS	NANTICOKE	32,400
ST. MARYS PAPER INC.	SAULT STE. MARIE	28,600
FRASER INC.	THOROLD	25,300
CYANAMID CANADA LTD. (CHEMICAL PLANT)	NIAGARA FALLS	25,150
ABITIBI-PRICE INC. (FT. WILLIAM DIV.)	THUNDER BAY	23,700
DENISON MINES LTD.	ELLIOT LAKE	21,900
ESSO CHEMICALS CANADA LTD.	SARNIA	21,500
H. J. HEINZ COMPANY OF CANADA LTD.	LEAMINGTON	19,100
CANADIAN SALT COMPANY LTD.	WINDSOR	19,050
CELANESE CANADA LTD.	ERNESTOWN TWP.	18,543
INCO METALS LTD.	PORT COLBORNE	18,500
GULF CANADA PRODUCTS LTD.	MISSISSAUGA	16,280
INTERNATIONAL MINERALS AND CHEMICALS	DUNNVILLE	15,642
BEAVER WOOD FIBRE COMPANY	THOROLD	14,700
FORD MOTOR COMPANY OF CANADA LTD.	ST. THOMAS	14,260
SOHIO	NIAGARA FALLS	14,100
RIO ALGOM LTD. (QUIRKE MILL)	ELLIOT LAKE	13,200
FORD MOTOR COMPANY OF CANADA LTD.	OAKVILLE	12,147
MACMILLAN BLOEDEL LTD.	STURGEON FALLS	12,100
STELCO PAGE HERSEY WORKS	WELLAND	11,992
DOMTAR CHEMICALS LTD.	GODERICH	11,500
INCO LTD. (NOLIN CREEK)	SUDBURY	11,100
DOMTAR FINE PAPERS	ST. CATHARINES	9,850
NORTON COMPANY	NIAGARA FALLS	9,830
DUPONT CANADA INC.	MAITLAND	9,800
ELDORADO NUCLEAR LTD.	PORT HOPE	9,360
COURTAULDS LTD. *	CORNWALL	9,200
KIMBERLY CLARK OF CANADA LTD.	ST. CATHARINES	8,260
FIBERGLAS CANADA	SARNIA	7,700
FIBERGLAS CANADA	SARNIA	7,700
FIBERGLAS CANADA LTD.	SARNIA	7,700
RIO ALGOM LTD. (PANEL MILL)	ELLIOT LAKE	7,480
ATLAS STEEL COMPANY	WELLAND	7,200
TEXACO CANADA LTD.	PORT CREDIT	6,810
PETROSAR LTD.	SARNIA	6,580
BCL (FORMERLY TCF)	CORNWALL	5,700

Table 2(a)

COMPANY NAME	LOCATION	DISCHARGE M3/DAY
TEXACO CANADA LTD. (NANTICOKE REFINERY)	JARVIS	4,240
PETRO CANADA PRODUCTS LTD.	OAKVILLE	3,913
STRATHCONA PAPER COMPANY	CAMDEN EAST TWP.	3,350
TRENT VALLEY PAPERBOARD MILLS	TRENTON	3,200
FALCONBRIDGE LTD.	ONAPING FALLS	3,170
OMSTEAD FOOD LTD.	WHEATLEY	3,170
INCO LTD. (GARSON MINE)	SUDBURY	3,100
CANADIAN INDUSTRIES LTD.	CORNWALL	3,050
CANADA STARCH CO. LTD.	CARDINAL	3,020
RIO ALGOM LTD. (STANLEIGH MILL)	ELLIOT LAKE	2,745
FORD MOTOR COMPANY OF CANADA LTD.	NIAGARA FALLS	2,726
UNION CARBIDE CANADA LTD.	CORUNNA	2,360
B. F. GOODRICH	NIAGARA FALLS	2,080
KRAFT FOODS LTD.	INGLESIDE	2,000
NITROCHEM INC.	MAITLAND	1,964
ONTARIO HYDRO (DOMESTIC TREATMENT)	TIVERTON	1,930
WINDSOR BUMPER	WINDSOR	1,930
DOMTAR PACKAGING LTD.	TRENTON	1,840
BORG-WARNER CHEMICALS LTD.	COBOURG	1,590
SILKNIT LTD. TEXTILE DIVISION	CAMBRIDGE	1,550
TEND-R-FRESH POULTRY	PETERSBURG	1,150
INCO LTD. SULPHUR PRODUCTS DEPT.	SUDBURY	1,130
INDUSTRIAL GRAIN PRODUCTS	THUNDER BAY	951
ELDORADO NUCLEAR LTD.	WELCOME	890
DOMTAR CONSTRUCTION MATERIALS LTD.	THOROLD	774
AMEROCK INC.	MEAFORD	682
REICHHOLD CHEMICALS LTD.	THUNDER BAY	427
SOLARWARE	CAMBRIDGE	372
J. M. SCHNEIDER INC.	AYR	368
ELDORADO NUCLEAR LTD.	PORT GRANBY	319
STANLEY WORKS LTD.	NEW HAMBURG	219
CAN OXY-DUREZ	FORT ERIE	180
GNB BATTERIES CANADA LTD.	FORT ERIE	159
CANADIAN CANNER'S LTD.	ST. DAVID'S	143
STELCO WELLAND TUBE WORKS	WELLAND	77
FLEET MANUFACTURING COMPANY LTD.	FORT ERIE	2
PARTEK INDUSTRIES	SARNIA	
PARTEK INDUSTRIES	SARNIA	

3. INDUSTRIAL DISCHARGES - 1984 DATA

The bulk of this report consists of the Wastewater Discharge Summary contained in Appendix A. It consists of a summary sheet for each of the 105 industrial sources.

The following information is presented for each discharge source:

1) The name of the discharger and the municipality in which the plant is located.

2) The Ministry of the Environment Region and the District Office that deals with the discharger.

3) A description of the industrial activity.

4) The nature of the flow -- continuous, intermittent, the means of discharge -- surface, open pipe, submerged diffuser, drainage ditch, and the number of discharge points.

5) The receiving water body and the distance from the Great Lakes.

6) The average annual effluent flow.

7) The average annual pollutant load and regulatory limits or guidelines (requirement) by pollutant parameter.

8) Comments on the effluent quality and/or status of the abatement program for each discharge source.

In addition, the 1984 report contains new information including data on pollutants which are monitored but not limited. Information on these monitored pollutants helps determine the quality trend of the effluent. Fish toxicity data for some industries, which was presented in a separate report to the IJC in the previous year, is also included. Acute toxicity tests provide information about the relative lethality of industrial effluents.

4. POLLUTION ABATEMENT REQUIREMENTS

The implementation of pollution control is a co-operative federal/provincial endeavour. Under the federal Fisheries Act, national legally-binding Regulations and voluntary Guidelines control water pollution from specific industrial sectors. Guidelines set minimum acceptable national standards for existing plants, while Regulations prescribe national effluent limitations for new and expanded plants for various industrial sectors. The only exception is the Regulations for chlor-alkali plants which apply to both existing and new facilities.

Ontario has agreed under the Federal-Provincial Accord for Environmental Protection to adopt pollution control requirements which are at least as stringent as the national requirements. Since most Ontario plants are in the "existing" category, Guidelines apply to the vast majority of the plants in this report. Currently, these federal effluent Guidelines and Regulations apply to fish processors, meat and poultry plants, potato processors, petroleum refineries, metal mining and the pulp and paper industry.

The Ontario Ministry of the Environment employs a variety of measures to encourage compliance with its requirements, ranging from voluntary measures, formal programs, control orders and if necessary, prosecution. The measures provide a degree of flexibility which enables the consideration of local circumstances in addition to provincial environmental objectives.

Legally-enforceable control orders under Section 113 of the EP Act may be issued to existing or new plants. Control orders define tasks and compliance dates by which specific tasks must be completed.

Traditionally Ontario has taken an effluent guidelines approach in setting provincial requirements. This approach which was incorporated into the "Industrial Guidelines" of 1968 was based on experience with municipal sewage treatment systems. It was presumed that treated industrial effluents should have the same pollutant concentrations as treated municipal effluent. Since industrial effluents are quite different from municipal effluents in regard to pollutants, pollutant concentration and volume flow, application of the same treatment technology will not necessarily result in similar treated effluent concentrations. Guidelines allow for the difference in results where similar treatment technology has been installed.

New plants recycle/reuse water in-plant to a much greater extent than do older plants. As a result, even when such plants use a highly effective treatment system, the effluent may exceed concentration limits. In these situations, the Ministry sets loading limits on a kilograms per day basis as well as on an effluent concentrations basis.

Ontario also uses a "water-quality approach" in setting effluent limits.*** In the case of biodegradeable pollutants, every river or lake has a definable dilution, dispersion or assimilation (self-purification) capacity for non-persistent waste discharges. Water quality considerations take precedence when biodegradeable discharges exceed the assimilative capacity of the receiving waters, but are within the limits set by federal Guidelines or Regulations. In these cases more stringent requirements, based on the assimilative capacity, are used to set effluent loading limits. Plants employing secondary treatment facilities to diminish biodegradeable discharges coincidentally reduce the amount of certain toxic compounds in varying degrees for specific compounds.

*** Water Management: Goals, Policies, Objectives and Implementation Procedures of the Ministry of the Environment. November 1978. Revised May 1984.

Thus, limits to the various discharges are set in several ways -- pollutant concentrations (milligrams per litre), pollutant loadings (kilograms per day), load per unit of production (kilograms related to production process variable), and radioactive loadings (becquerels per litre per day).

The acute toxicity test may be used to set effluent quality limits. Under federal Regulation, new pulp and paper mills must pass this test as defined by the 1971 Regulation. By the definition of new mills, Ontario's pulp and paper mills are excluded from the Regulation. A different fish acute toxicity test is used for the Petroleum Refineries in the Federal Guidelines. All Ontario Petroleum Refineries pass this test. Ontario's acute fish toxicity test is used as an indicator that the effluent has severe adverse effects upon fish in the effluent plume.

5. SELF MONITORING REQUIREMENTS AND AUDIT PROCESS

All the plants included in this report monitor their own discharges. At present, the vast majority of Ontario sources monitor their effluents on a voluntary basis although recently a start has been made to specify monitoring requirements in Certificates of Approval. To ensure that the self monitoring data are accurate, the Ministry of the Environment takes random audit samples. The audit sample results will be published in future reports.

Both the federal and Ontario agencies have monitoring and reporting requirements. While petroleum refineries and pulp and paper plants must comply with both federal and Ontario requirements, all other industries must comply only with Ontario monitoring requirements.

New Monitoring and Regulatory Initiatives

The Ministry of the Environment (1986) is developing a new program for the control of toxic substances discharged from point sources, known as the Municipal-Industrial Strategy for Abatement (MISA). Under this program, a Monitoring and Reporting Regulation will set legal requirements for the submission, accuracy and reliability of self-monitoring information including specification for sampling and analytical protocols and quality assurance and quality control procedures. This new Regulation will specify a list of pollutants and a set of sampling schedules for each defined industrial (and municipal) sector. When implemented, the Regulations will expand significantly the available data base on emissions of toxic substances and result in greater uniformity in reporting.

In the near future, the Ministry of the Environment will be formulating compliance Regulations for each industrial sector and the municipal sector where the effluent limits will be based on an acceptable level of treatment technology that will apply to both new and existing plants. The data collected under the Monitoring and Reporting Regulation will be used to determine if existing discharges are in compliance with these limits.

Receiving water quality based requirements will also be determined and the more stringent of the water quality based and technology based limits will be imposed.

6. DATA COLLECTION SYSTEM (IMIS)

The Industrial Monitoring Information System (IMIS), an electronic storage and retrieval program, was used to collect data for the 1983 and 1984 IJC reports. Discharge data from the industrial plants was first submitted to the Ministry of the Environment district offices, which in turn, transferred the data to the IMIS. Master data files are maintained at the Downsview Computer Centre (DCC) in Toronto and information can be retrieved by the regional offices as well as the head office.

Although the IMIS system supplies monthly averages, the 1984 report (and previous reports) contains only the annual average (i.e. the sum of 12 monthly averages divided by 12).

7. COMPLIANCE

Table 3, on pages 14 to 17, summarizes the compliance records of the plants included in the 1984 inventory. When the reported discharge was below requirement levels on an annual basis, the source is defined as in compliance. Such companies are recorded as "In Compliance 1984". Some companies that monitor and report pollutants but have "No Requirement" are identified in the "In Compliance" column. For some companies not in compliance, reference is made to the company sheet, Appendix A, for an explanation. Sources showing "Company Instituting Controls" were in the process of installing effluent controls; and plants classified as "Existing Control Order Requires Further Reductions" are identified as such. The discharge of pollutants that exceeded Ministry requirements are identified as "Parameters In Exceedence of Ministry Guidelines".

Of the 105 sources listed in Appendix A, 55 were in compliance with effluent limits, 5 had "No Requirement", and 45 exceeded the guidelines. Three (3) plants which reported 1983 loadings did not do so for 1984; see footnote Table 3, page 17. Fourteen (14) sources are instituting additional effluent controls, and the explanations for the non-compliance status of 31 companies are referred to in their respective Summaries, Appendix A.

TABLE 2

1984 COMPLIANCE SUMMARY

COMPANY NAME	LOCATION	PAGE NUMBER	IN COMPLIANCE 1984	COMPANY INSTITUTING CONTROLS	SEE COMPANY SHEET	CONTROL ORDER REQUIRES FURTHER REDUCTIONS	PARAMETERS IN EXCEEDENCE OF MINISTRY GUIDELINES
ABITIBI-PRICE INC. (FT. WILLIAM DIV.)	THUNDER BAY	A-5	x				
ABITIBI-PRICE INC. (PROVINCIAL PAPERS DIV.)	THUNDER BAY	A-6	x				
ABITIBI-PRICE INC. (THUNDER BAY DIV.)	THUNDER BAY	A-7	x				
ALGOMA STEEL CORPORATION LTD.	SAULT STE. MARIE	A-11			X	X	CYANIDE, NH3
ALLIED CANADA INC.	AMHERSTBURG	A-47			x		NH3
AMEROCK INC.	MEAFORD	A-26	NO REQUIREMENT				
ATLAS STEEL COMPANY	WELLAND	A-66		x			TOTAL SUSPENDED SOLID
B. F. GOODRICH	NIAGARA FALLS	A-69	X				
BCL (FORMERLY TCF)	CORNWALL	A-103		x			BOD, SULPHURIC ACID
BEAVER WOOD FIBRE COMPANY	THOROLD	A-78			x		BOD, TSS
BORG-WARNER CHEMICALS LTD.	COBOURG	A-89	X				
CAN OXY-DUREZ	FORT ERIE	A-62			x		PHENOLICS
CANADA STARCH CO. LTD.	CARDINAL	A-100			X		TSS
CANADIAN CANNER'S LTD.	ST. DAVID	A-74	x				
CANADIAN INDUSTRIES LTD.	CORNWALL	A-105	x				
CANADIAN INDUSTRIES LTD.	COURTWRIGHT	A-43	x				
CANADIAN SALT COMPANY LTD.	WINDSOR	A-45	NO REQUIREMENT				
CELANESE CANADA LTD.	ERNESTOWN TWP.	A-96			x		CHEMICAL OXYGEN DEMAND
COURTAULDS LTD.	CORNWALL	A-102			x		BIOCHEMICAL OXYGEN DEMAND
CYANAMID CANADA LTD.	NIAGARA FALLS	A-73	x				
CYANAMID CANADA LTD. (WELLAND PLANT)	NIAGARA FALLS	A-68			X		NH3, NITROGEN, NITRATE
DENISON MINES LTD.	ELLIOT LAKE	A-13	x				
DOFASCO	HAMILTON	A-82		x			TOTAL SUSLPENDED SOLIDS
DOMTAR CHEMICALS LTD.	GODERICH	A-30	NO REQUIREMENT				
DOMTAR CONSTRUCTION MATERIALS LTD.	THOROLD	A-81			x		BIOCHEMICAL OXYGEN DEMAND
DOMTAR FINE PAPERS	CORNWALL	A-104	x			X	
DOMTAR FINE PAPERS	ST. CATHARINES	A-76		x			BIOCHEMICAL OXYGEN DEMAND
DOMTAR PACKAGING LTD.	TRENTON	A-93	x				
DOMTAR PACKAGING LTD.	RED ROCK	A-8	x				
DOW CHEMICAL CANADA LTD.	SARNIA	A-31	x				
DUPONT CANADA INC. (TETRA ETHYL LEAD)	MAITLAND	A-97			X		LEAD
DUPONT CANADA INC. (NYLON INTERMEDIATES)	MAITLAND	A-98	X				
DUPONT CANADA INC.	CORUNNA	A-38	x				
E. B. EDDY FOREST PRODUCTS LTD.	ESPANOLA	A-17	x				

TABLE 3 (continued)
1984 COMPLIANCE SUMMARY

COMPANY NAME	LOCATION	PAGE NUMBER	IN COMPLIANCE 1984	COMPANY INSTITUTING CONTROLS	SEE COMPANY SHEET	CONTROL ORDER REQUIRES FURTHER REDUCTIONS	PARAMETERS IN EXCEEDENCE OF MINISTRY GUIDELINES
ELDORADO NUCLEAR LTD.	PORT GRANBY	A-91	x				
ELDORADO NUCLEAR LTD.	WELCOME	A-90	x				
ELDORADO NUCLEAR LTD.	PORT HOPE	A-92	x				
ESSO CHEMICALS CANADA LTD.	SARNIA	A-32	x				
ESSO PETROLEUM CANADA	SARNIA	A-33	x				
ETHYL CANADA INC.	CORUNNA	A-39			x		LEAD
FALCONBRIDGE LTD.	ONAPING FALLS	A-19			X		NICKEL, COPPER
FALCONBRIDGE LTD.	FALCONBRIDGE	A-18	X				
FALCONBRIDGE LTD. (MOOSE LAKE)	FALCONBRIDGE	A-20	x				
FIBERGLAS CANADA LTD.	SARNIA	A-34			x		PHENOLICS
FLEET MANUFACTURING COMPANY LTD.	FORT ERIE	A-34	x				
FORD MOTOR COMPANY OF CANADA LTD.	OAKVILLE	A-84			x		BIOCHEMICAL OXYGEN DEMAND
FORD MOTOR COMPANY OF CANADA LTD.	NIAGARA FALLS	A-70			x		TOTAL PHOSPHORUS
FORD MOTOR COMPANY OF CANADA LTD.	ST. THOMAS	A-50			X		PHENOL, TOTAL PHOSPHORUS
FORD MOTOR COMPANY OF CANADA LTD.	WINDSOR	A-46			x		TSS, PHENOLICS
FRASER INC.	THOROLD	A-80			x		BIOCHEMICALS OXYGEN DEMAND
GENERAL MOTORS OF CANADA LTD.	ST. CATHARINES	A-75			x		PHENOLICS
GNB BATTERIES CANADA LTD.	FORT ERIE	A-63		x			LEAD, TSS
GREAT LAKES FOREST PRODUCTS LTD.	THUNDER BAY	A-1	x			X	
GULF CANADA PRODUCTS LTD.	MISSISSAUGA	A-87			x		PHENOL, OIL & GREASE, TSS
H. J. HEINZ COMPANY OF CANADA LTD.	LEAMINGTON	A-48	X				
INCO LTD. (COPPER CLIFF CREEK)	SUDBURY	A-22			x		IRON
INCO LTD. (GARSON MINE)	SUDBURY	A-24	x				
INCO LTD. (NOLIN CREEK)	SUDBURY	A-21			x		IRON, NICKEL, COPPER, ZINC
INCO LTD. SULPHUR PRODUCTS DEPT.	SUDBURY	A-23			x		NICKEL
INCO METALS LTD.	PORT COLBORNE	A-61			x		
INTERNATIONAL MINERALS AND CHEMICALS	DUNNVILLE	A-60		x			
J. M. SCHNEIDER INC.	AYR	A-59		x			BOD, TSS, NH3, OIL & GREASE
JAMES RIVER MARATHON LTD.	MARATHON	A-10	x			X	
KIMBERLY CLARK OF CANADA LTD.	ST. CATHARINES	A-79	x				
KIMBERLY CLARK OF CANADA LTD.	TERRACE BAY	A-9	x				
KRAFT FOODS LTD.	INGLESIDE	A-101		x			BOD, TOTAL PHOSPHORUS
MACMILLAN BLOEDEL LTD.	STURGEON FALLS	A-25	x			X	
NITROCHEM INC.	MAITLAND	A-99			X	X	N-KJELDAHL, NITRATE
NORTON COMPANY	NIAGARA FALLS	A-72	x				
OGILIVE MILLS	THUNDER BAY	A-2	X			X	BOD

TABLE 3 (continued)

1984 COMPLIANCE SUMMARY

COMPANY NAME	LOCATION	PAGE NUMBER	IN COMPLIANCE 1984	COMPANY INSTITUTING CONTROLS	SEE COMPANY SHEET	CONTROL ORDER REQUIRES FURTHER REDUCTIONS	PARAMETERS IN EXCEEDENCE OF MINISTRY GUIDELINES
OMSTEAD FOOD LTD.	WHEATLEY	A-49		x			BOD, TSS
ONTARIO HYDRO (DOMESTIC TREATMENT)	TIVERTON	A-27	x				
ONTARIO HYDRO (HEAVY WATER PLANT)	TIVERTON	A-28	x				
ONTARIO HYDRO (THERMAL DATA)	TIVERTON	A-29	X				
ONTARIO HYDRO (TGS)	NANTICOKE	A-52	NO REQUIREMENT				
ONTARIO HYDRO (THERMAL DATA)	NANTICOKE	A-53	X				
ONTARIO HYDRO (TGS) (LAKEVIEW)	TORONTO	A-88	X				
ONTARIO HYDRO (TGS) (LAMBTON)	COURTRIGHT	A-42	X				
ONTARIO HYDRO (TGS) (THUNDER BAY)	THUNDER BAY	A-4	X				
ONTARIO PAPER COMPANY INC.	THOROLD	A-79	x				
PETRO CANADA PRODUCTS LTD.	OAKVILLE	A-85			x		NH3, PHENOLICS
PETROSAR LTD.	SARNIA	A-35			x		PHENOLICS
POLYSAR LTD.	SARNIA	A-36	x				
REICHHOLD CHEMICALS LTD.	THUNDER BAY	A-3			X		TOTAL SUSPENDED SOLIDS
RIO ALGOM LTD. (PANEL MILL)	ELLIOT LAKE	A-14	x				
RIO ALGOM LTD. (QUIRKE MILL)	ELLIOT LAKE	A-15	x				
RIO ALGOM LTD. (STANLEIGH MILL)	ELLIOT LAKE	A-6	NO REQUIREMENT				
SHELL CANADA LTD.	CORUNNA	A-41	x				
SILKNIT LTD. TEXTILE DIVISION	CAMBRIDGE	A-55			X		BOD
SOHIO	NIAGARA FALLS	A-73	x				
SOLARWARE	CAMBRIDGE	A-56		x			IRON ,TSS
ST. MARYS PAPER INC.	SAULT STE. MARIE	A-12		X			BIOCHEMICAL OXYGEN DEMAND
STANLEY WORKS LTD.	NEW HAMBURG	A-58	x				
STELCO INC.	HAMILTON	A-83		x			TSS, PHEN, HCN
STELCO INC. LAKE ERIE WORKS	NANTICOKE	A-54	x				
STELCO PAGE HERSEY WORKS	WELLAND	A-67	x				
STELCO WELLAND TUBE WORKS	WELLAND	A-65	x				
STRATHCONA PAPER COMPANY	CAMDEN EAST TWP.	A-95			X	X	BIOCHEMICAL OXYGEN DEMAND
SUNCOR SUNOCO GROUP	SARNIA	A-37	x				
TEND-A-FRESH POULTRY	PETERSBURG	A-57		x			TOTAL PHOSPHORUS, BOD
TEXACO CANADA LTD.	PORT CREDIT	A-86	x				
TEXACO CANADA LTD. (NANTICOKE REFINERY)	JARVIS	A-51	x				
TRENT VALLEY PAPERBOARD MILLS	TRENTON	A-94			X	X	BIOCHEMICAL OXYGEN DEMAND
UNION CARBIDE CANADA LTD.	CORUNNA	A-40	x				
WICKES MANUFACTURING CO. LTD	WINDSOR	A-44		x			TOTAL SUSPENDED SOLIDS

			TABLE 3 (continued)				
FOOTNOTE		1984	COMPLIANCE SUMM	ARY			
CHRYSLER CANADA LTD.	WINDSOR	*	DISCHARGE INTO M	UNICIPAL SEW	ER		
DINER'S DELITE	NIAGARA FALLS	*	PLANT CLOSED				
SHELL CANADA LTD.	OAKVILLE	*	NO REPORT - PLAN	T IS BEING D	ISMANTLED		
DUPONT CANADA INC. (TETRA ETHYL LEAD)	HAITLAND	*	PLANT IS BEING	DISMANTLING			
SILKNIT LTD.	CAMBRIDGE	A-55	CLOSED OCTOBER	1984			
INTERNATIONAL MINERALS AND CHEMICALS	DUNNEVILLE	A-60	PRODUCTION STOPP	ED JULY 1984	. TREATMEN	T SYSTEM KEPT OPER	ATIONAL.
* LISTED IN THE 1983 INVENTORY							

8. TRENDS

The progress of petroleum refineries, the pulp and paper industry, and the steel industry are summarized on pages 23 to 31. Readers may wish to refer to the subsequent section, Pollutants and their Significance, when reviewing the data.

Petroleum Refineries Progress

All the Petroleum Refineries have effluent treatment systems that consist of various primary and secondary treatment stages. The treatment systems are comparable to those required by the U.S. EPA. The quality of treated effluent from the Petroleum Refineries is judged by four parameters - Total Suspended Solids, Phenolics, Ammonia - Nitrogen, Oil and Grease and the federal fish lethality test. The federal fish lethality test procedures are different for each Industrial Sector. In general, the industry tends to meet these limits.

Total Suspended Solids

Of the eight petroleum refineries listed on Table 6 (page 23), three reported an increase in suspended solids discharges since 1983, two reported a decrease; one refinery closed and two refineries reported no change. Total discharges almost doubled (from 520 kilograms per day to 1020 per day) from 1983 to 1984 although total levels dropped by 378 kilograms per day since 1982 and by 2,080 kilograms per day since 1980.

Phenolics

Three of the eight refineries reported a drop in phenolic discharges since 1983 and four reported an increase. Total phenolic discharges increased from 3.07 kilograms per day in 1983 to 4.16 kilograms per day in 1984. 1984 levels, however, were 4.41 kilograms per day lower than 1982 levels (reported as 8.57 kilograms) and 11.64 kilograms per day lower than 1980 levels (15.80 kilograms).

Ammonia-nitrogen

Two plants reported a decrease in ammonia-nitrogen discharges and five reported an increase. The total discharges in 1984 (213 kilograms) were 12 kilograms per day higher than the total for 1983 (225 kilograms). Ammonia-nitrogen discharges in 1984 were 16 kilograms less per day than discharges in 1982 (213 kilograms compared to 229 kilograms) and 146 kilograms less per day than the total 359 kilograms per day reported in 1980.

Oil and Grease

Oil and grease discharges were higher for six of the seven refineries in 1984 than they were in 1983. Total discharges increased by 321 kilograms per day (693 kilograms compared to 372 kilograms) over 1983. Total oil and grease discharges in 1984 were 212 kilograms per day higher than discharges in 1982 (481 kilograms). Discharge levels in 1984, however, were almost fifty per cent less than 1980 levels (693 kilograms compared to 1218 kilograms).

As a simple indicator of environment performance the ratio of effluent volume to production rate can be calculated (see Table 4). For existing plants, the ability to make plant changes or add external pollution control is limited and much more expensive than for new plants. The large effluent volumes may be due to the use of once-through cooling water. With such large flows pollutants are diluted and become difficult to measure. On the other hand total water use and pollutant discharges - raw and treated - are much reduced for new plants.

Table 4

Petroleum Refineries Effluent Volumes

Old/new: Company/Location	Barrels per day Nominal Capacity	Effluent cubic metres/day	Effluent to Capacity Ratio
Old, Shell at Corunna	70,000	234,700	3.353
Old, Esso at Sarnia	120,000	215,700	1.7975
Old, Suncor at Sarnia	80,000	119,000	1.488
New, Texaco at Nanticoke	100,000	6,810	0.068
New, Petrosar at Sarnia	100,000	6,580	0.066

Pulp and Paper Industry Progress

The effluent objectives stated for this industry in 1968 still apply. The quality of the effluent is judged by three pollutant parameters - Total Suspended Solids, Biochemical Oxygen Demand and the acute fish toxicity test.

The pulp and paper industry has reduced significantly Total Suspended Solids. Progress has been made in the other two parameters. Some mills have installed secondary effluent treatment which reduces the gross discharge of organics; this also reduces the toxic compounds. Some mills pass the acute fish lethality test.

Total Suspended Solids

Of the 20 pulp and paper plants included in the inventory (see Table 7), eleven reported lower levels of suspended solids in 1984 over 1983, eight reported higher levels and one plant reported no change. Total suspended solids discharges dropped by 8.9 megagrams per day between 1983 and 1984 (62.20 megagrams compared to 71.10) and by 18.7 megagrams per day since 1982 (62.20 compared to 80.90). Since 1980, suspended solids discharges have dropped by 32.9 megagrams per day. A megagram is 1,000 kilograms or one metric ton.

Biochemical Oxygen Demand

Eleven of the 20 plants reporting BOD levels indicated an increase in 1984, and eight indicated a decrease, although total BOD levels decreased by 36 megagrams per day (253 megagrams in 1984 compared to 289 megagrams in 1983). One mill did not report any BOD results. 1984 levels were also 70 megagrams lower than 1982 levels and 91 megagrams lower than 1980 levels.

Steel Industry Progress

Effluent quality for the primary steel producers is judged by five parameters - ammonia-nitrogen, phenols, total suspended solids, acute fish lethality and oil and grease. The rate of progress has been fixed by the nature of steel producing technology - large batch operations, equipment that lasts forty years, etc.

Ammonia

Three of the four companies listed in Table 5 reported an increase in ammonia discharges over 1983 and one company reported no change. Total ammonia discharges in 1984 exceeded 1983 discharges by 450 kilograms per day (5160 kilograms compared to 4710 kilograms), but were 2250 kilograms less than 1982 levels. Ammonia discharges also dropped by more than fifty per cent between 1980 (11740 kilograms per day) and 1984 (5160 kilograms per day).

Phenols

All four companies reported a decrease in phenol discharges between 1983 and 1984. Total phenol discharges for 1984 were 29 kilograms per day lower than they were in 1983 (157 kilograms compared to 186 kilograms). In addition, phenol discharges have dropped by 108 kilograms per day since 1982 and by 243 kilograms per day since 1980.

Suspended Solids

One company reported a decrease in suspended solids discharges between 1983 and 1984 and three reported an increase. The 1984 total was 12,000 kilograms per day higher than the 1983 total (44900 kilograms compared to 32900 kilograms) and 14,500 higher than the 1982 total (30400 kilograms). 1984 discharges of suspended solids, however, was slightly lower (100 kilograms per day) than the 1980 level.

Oil and Grease

Three companies reported higher discharges of oil and grease in 1984 and one reported a lower level. The total discharge for 1984 was 2110 kilograms per day higher than the 1983 total (5340 kilograms compared to 3230 kilograms) and 3550 kilograms higher than the 1982 total. Oil and grease discharges dropped by 570 kilograms since 1980 from 5910 kilograms per day.

It is more difficult and much more costly for older existing plants to remove pollutants. In general a smaller volume is easier to correct and control as shown in the following table.

Table 5
Steel Effluent Volumes
1984

Old/new: Company/Location	Tonnes per year Nominal Capacity	Effluent Cubic Metres/Day	Effluent to Capacity Ratio
Old, Stelco at Hamilton	5,261,650	1,183,000	0.225
Old, Dofasco at Hamilton	4,115,810	804,000	0.195
Old, Algoma Steel at Sault Ste. Marie	3,600,000	503,700	0.140
New, Stelco at Nanticoke (old steel plants have difficulties measuring effluent flows)	1,164,800	32,400	0.028

Table 6
PETROLEUM REFINERIES PROGRESS

(ALL LOADINGS IN KILOGRAMS PER DAY)

	TOTAL SUSPENDED SOLIDS				
	1980	1981	1982	1983	1984
ESSO CANADA @ SARNIA	32.6	322	276.0	(0)*	290.0
GULF @ CLARKSON	1493.0	235	210.0	226.0	341.0
PETRO CANADA @ OAKVILLE	47.0	39	31.1	60.2	54.6
PETROSAR @ CORUNNA	86.9	209	133.0	106.0	70.2
SHELL @ CORUNNA	745.0	865	309.0	(0)*	(0)*
SHELL @ OAKVILLE		48.8	40.3	50.6	CLOSED
SUNCOR @ SARNIA	296.0	347	393.0	67.3	255.0
TEXACO @ NANTICOKE	14.4	7.8	5.1	9.6	9.4
TOTALS	3000.0	2074	1398.0	520.0	1020.0

(ALL LOADINGS IN KILOGRAMS PER DAY)

	PHENOLICS				
	1980	1981	1982	1983	1984
ESSO CANADA @ SARNIA	.90	1.80	1.90	.68	.60
GULF @ CLARKSON	6.90	3.50	2.80	.22	1.41
PETRO CANADA @ OAKVILLE	.14	.12	.08	.12	.17
PETROSAR @ CORUNNA	.28	.80	1.31	.40	.43
SHELL @ CORUNNA	5.08	.60	.51	.72	.42
SHELL @ OAKVILLE	.04	.04	.03	.04	CLOSED
SUNCOR @ SARNIA	2.44	3.10	1.90	.77	1.08
TEXACO @ NANTICOKE	.06	.04	.04	.12	.04
TOTALS	15.80	10.00	8.57	3.07	4.16

* INTAKE EXCEEDED DISCHARGE

Table 6
PETROLEUM REFINERIES PROGRESS (CONTINUED)

(ALL LOADINGS IN KILOGRAMS PER DAY)

	AMMONIA-NITROGEN				
	1980	1981	1982	1983	1984
ESSO CANADA @ SARNIA	118.0	116.0	83.0	81.0	56.00
GULF @ CLARKSON	50.4	29.7	54.7	33.2	50.50
PETRO CANADA @ OAKVILLE	23.3	19.0	29.8	29.1	48.00
PETROSAR @ CORUNNA	13.9	53.4	39.9	14.5	19.50
SHELL @ CORUNNA	82.3	15.4	16.5	(0)*	4.80
SHELL @ OAKVILLE		36.8	13.7	23.0	CLOSED
SUNCOR @ SARNIA	69.3	42.0	49.0	30.3	31.10
TEXACO @ NANTICOKE	1.6	.6	2.1	13.6	3.26
TOTALS	359.0	313.0	229.0	225.0	213.00

	OIL AND GREASE				
	1980	1981	1982	1983	1984
ESSO CANADA @ SARNIA	222.00	142.0	131.0	10.0	176.00
GULF @ CLARKSON	649.00	223.0	232.0	223.0	311.00
PETRO CANADA @ OAKVILLE	14.00	5.2	2.4	6.0	6.92
PETROSAR @ CORUNNA	5.52	9.0	6.0	18.1	10.40
SHELL @ CORUNNA	262.00	56.7	58.7	72.1	88.00
SHELL @ OAKVILLE	15.00	15.5	7.3	12.4	CLOSED
SUNCOR @ SARNIA	43.70	41.0	40.4	24.3	94.30
TEXACO @ NANTICOKE	6.30	5.5	2.9	6.6	6.73
TOTALS	1218.00	497.0	481.0	372.0	693.00

* INTAKE EXCEEDS DISCHARGE

YEAR	1967	1980	1981	1982	1983	1984
PRODUCTION BBLS/DAY	403000	574000	633000	502000	519000	

1967 TOTALS (KILOGRAMS/DAY)

AMMONIA	2320
SUSPENDED SOLIDS	-
OIL AND GREASE	4110
PHENOLICS	102

Figure 1

REFINERIES SECTOR PROGRESS

FOUR MAJOR PARAMETERS

ONTARIO GREAT LAKES BASIN

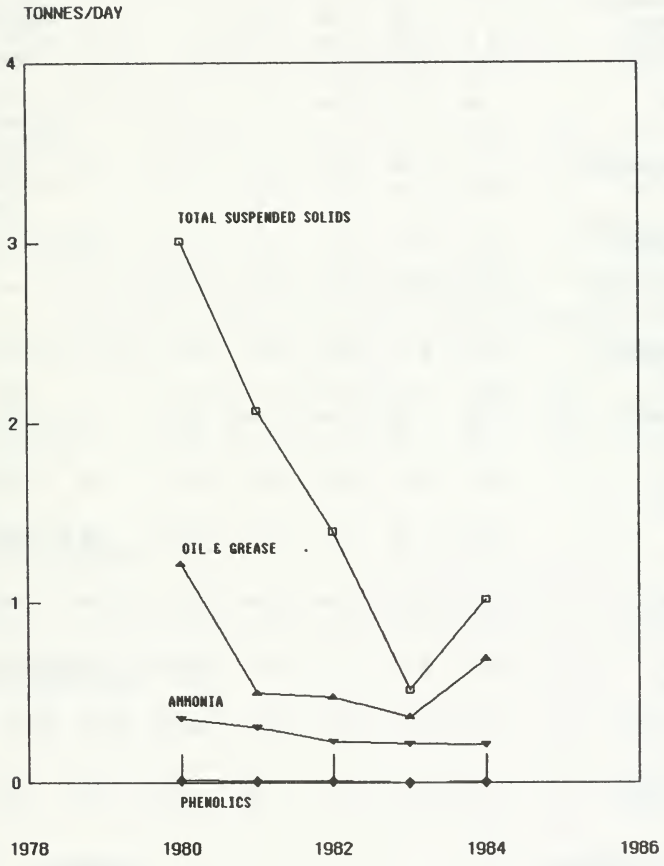


Table 7
PULP AND PAPER INDUSTRY PROGRESS

(ALL DATA IN MEGAGRAMS PER DAY)

	TOTAL SUSPENDED SOLIDS				BIOCHEMICAL OXYGEN DEMAND			
	1980	1982	1983	1984	1980	1982	1983	1984
ABITIBI-PRICE INC.								
FINE PAPERS	)	1.00	1.70	1.76)		3.20	3.70	3.75
FORT WILLIAM	) 4.89	1.30	1.30	1.18)	51.1	11.20	8.10	9.02
THUNDER BAY	)	1.00	1.10	1.15)		19.80	17.90	19.60
BEAVER WOOD @ THOROLD	.82	.78	1.86	1.43	1.50	2.00	2.50	3.91
DOMTAR CONSTRUCTION @ THOROLD	.21	.18	.22	.31	.30	.40	.50	.63
DOMTAR FINE PAPERS @ ST. CATHARINES	.42	.37	.34	.27	.83	.77	.75	.71
DOMTAR FINE PAPERS @ CORNWALL	12.00	10.50	10.90	8.68	13.30	13.30	16.10	19.00
DOMTAR PACKAGING * @ RED ROCK	4.20	4.40	5.00	4.32	20.90	16.90	16.50	17.80
DOMTAR PACKAGING @ TRENTON	.30	.33	.40	.46	2.90	3.60	4.50	5.04
EDDY FOREST * @ ESPANOLA	8.10	6.50	5.90	5.06	22.50	21.40	13.90	3.04
FRASER @ THOROLD	3.50	.95	.84	1.22	4.40	2.30	1.80	2.41
GREAT LAKES * @ THUNDER BAY	14.40	12.30	11.70	12.20	102.00	82.00	71.00	49.70
JAMES RIVER @ MARATHON	10.50	9.70	7.10	5.45	19.80	17.10	13.50	14.70
KIMBERLY CLARK * @ TERRACE BAY	7.40	7.10	6.50	6.72	30.00	32.00	36.10	36.00
KIMBERLY CLARK @ ST. CATHARINES	.22	.21	.11	.05	.52	.52	.58	.34

* MILLS HAVE EXPANDED SINCE 1977

...CONTINUED

Table 7
PULP AND PAPER INDUSTRY PROGRESS (CONTINUED)

(ALL DATA IN MEGAGRAMS PER DAY)

	TOTAL SUSPENDED SOLIDS				BIOCHEMICAL OXYGEN DEMAND			
	1980	1982	1983	1984	1980	1982	1983	1984
MacMILLAN BLOEDEL @ STURGEON FALLS	6.20	1.70	2.20	2.20	42.10	64.60	58.50	50.70
ONTARIO PAPER * @ THOROLD	7.50	9.60	10.20	6.69	21.70	14.80	16.60	11.50
ST. MARYS PAPER @ SAULT STE. MARIE	13.50	12.60	3.40	2.53	8.60	6.30	5.90	4.80
STRATHCONA PAPER @ STRATHCONA	.10	.045	.062	.06	.87	.52	.65	.69
TRENT VALLEY PAPERBOARD @ TRENTON	1.20	.35	.28	.88	.34	.28	-	-
TOTALS	95.50	80.90	71.10	62.60	344.00	313.00	289.00	253.00

YEAR	1967	1977	1980	1982	1983	1984
SALEABLE PRODUCTION	7350	8219	9119	8552	9477	9932

1967 LOADINGS

TOTAL SUSPENDED SOLIDS	375
BIOCHEMICAL OXYGEN DEMAND	610

1973 LOADINGS

TOTAL SUSPENDED SOLIDS	126
BIOCHEMICAL OXYGEN DEMAND	470

Figure 2

PULP & PAPER SECTOR PROGRESS

TWO MAJOR PARAMETERS

ONTARIO GREAT LAKES BASIN

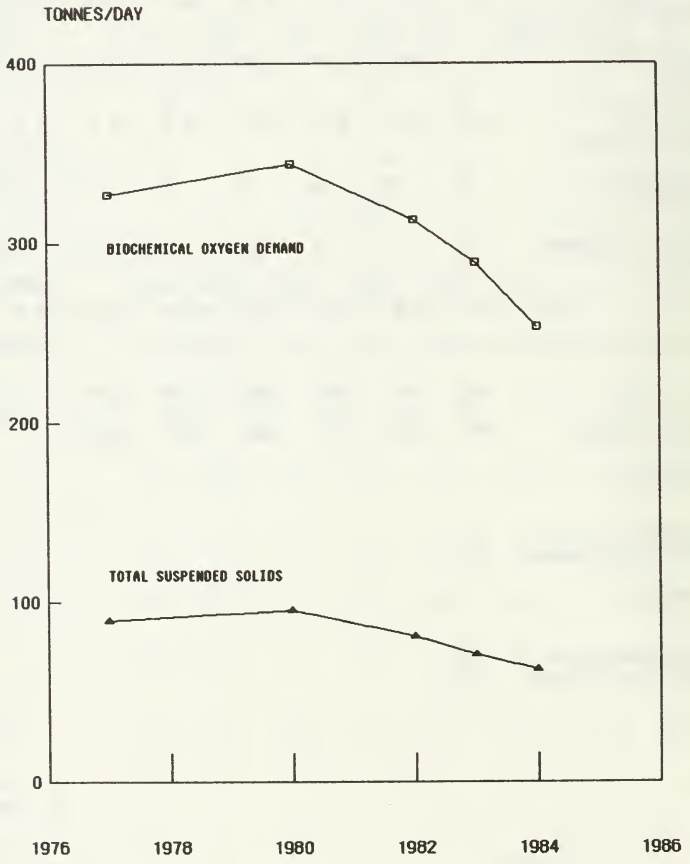


Table 8

STEEL INDUSTRY PROGRESS

(ALL DATA IN KILOGRAMS PER DAY)

	AMMONIA				PHENOLS			
	1980	1982	1983	1984	1980	1982	1983	1984
ALGOMA STEEL CORP. @ SAULT STE. MARIE	5690	4230	3160	3490	149.00	102.00	101.000	99.00
DOFASCO @ HAMILTON	2050	1540	970	1140	32.00	48.00	16.000	14.60
STELCO @ HAMILTON	4000	1630	570	525	114.00	115.00	69.000	43.00
STELCO @ NANTICOKE *	-	14	6	6	-	.06	.058	.07
TOTALS	11740	7410	4710	5160	300.00	265.00	186.00	157.00

* NEW STEEL FACILITY
BUILT IN 1979-1981

(ALL DATA IN KILOGRAMS PER DAY)

	SUSPENDED SOLIDS				OIL & GREASE			
	1980	1982	1983	1984	1980	1982	1983	1984
ALGOMA STEEL CORP. @ SAULT STE. MARIE	11700	7170	7830	7760	4420	1510	1610	1570
DOFASCO @ HAMILTON	21100	16300	12500	18100	310	200	210	464
STELCO @ HAMILTON	12100	6700	12300	18800	1180	70	1370	3240
STELCO @ NANTICOKE *	-	230	280	285	-	22	38	69
TOTALS	45000	30400	32900	44900	5910	1790	3230	5340

* NEW STEEL FACILITY
BUILT IN 1979-1981

Table 8 (cont'd)
(ALL DATA IN KILOGRAMS PER DAY)

	CYANIDE				IRON			
	1980	1982	1983	1984	1980	1982	1983	1984
ALGOMA STEEL CORP. a SAULT STE. MARIE	603	158	127.0	75.0	-	3250	3490	3490
DOFASCO	26	22	39.0	31.3	2430	-	2470	3550
STELCO a HAMILTON	480	70	99.0	152.0	8650	3500	4630	5580
STELCO a NANTICOKE *	-	1	1.6	1.7	-	13	23	17
TOTALS	1110	251	267.0	260.0	-	-	10610	12600

* NEW STEEL FACILITY
BUILT IN 1979-1981

YEAR	1967	1980	1982	1983	1984
FINISHED PRODUCT IN TONNES	8,000,000	13,100,000	10,100,000	10,800,000	

1967 TOTALS (KILOGRAMS/DAY)

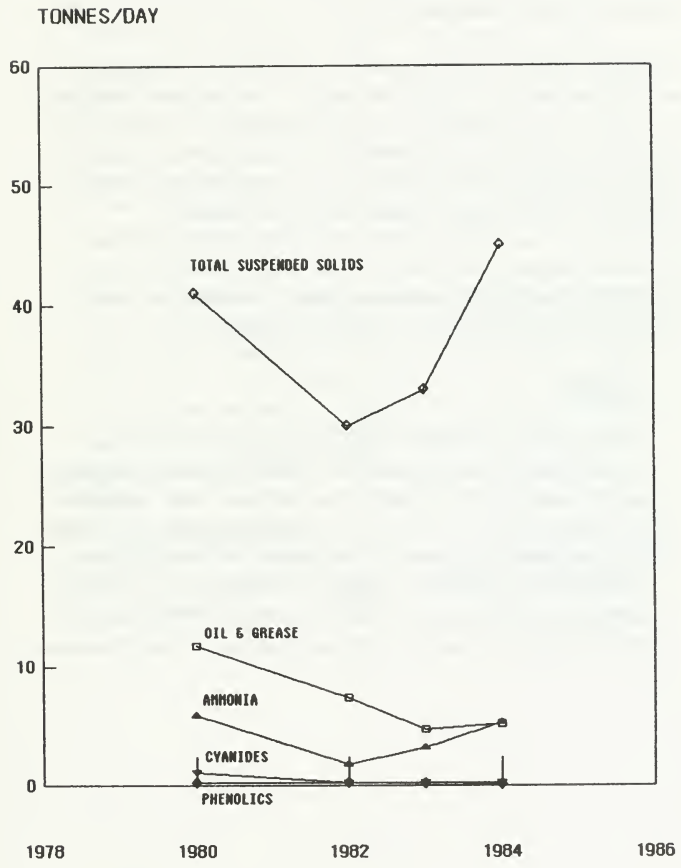
AMMONIA	23000
SUSPENDED SOLIDS	126000
PHENOLS	2730
OIL & GREASE	30000
CYANIDE	2370

Figure 3

STEEL SECTOR PROGRESS

FIVE MAJOR PARAMETERS

ONTARIO GREAT LAKES BASIN



9. POLLUTANTS AND THEIR SIGNIFICANCE

The significance of each of the industrial discharges on the water quality of the great lakes depends on location, volume of flow and effluent characteristics. Some are identified as contributing to degraded water quality in "Areas of Concern" cited by the International Joint Commission.

In the Great Lakes context, overall loadings of most pollutants are the important measure of potential impact. The pollutants monitored and controlled by the Ministry of the Environment fall into one of four major groups defined by the International Joint Commission: physical (settleable and suspended solids, temperature), chemical (persistent toxics, non-persistent toxics and others), microbiological and radiological. The Ontario Ministry of the Environment document, "Rationale For The Establishment of Ontario's Water Quality Objectives, September, 1979", provides additional information on the signifance of these pollutants.

A. Physical

Under quiescent conditions suspended solids settle to the bottom where they may destroy fish spawning grounds and smother benthic organisms -- the basic food for many fish. Suspended solids may also plug fish gills. Nonsettleable solids in water increase turbidity, reduce light penetration and thus restrict phytoplankton production. Thermal discharges from electricity generating stations can, if too hot, act as a thermal barrier that prevents cold water fish from entering the receiving water.

B. Chemical

1. Persistent Toxics

Toxic substances are defined (G.L.W.Q.A. Article 1 (1)) as substances that "can cause death, disease, behavioural abnormalities, cancer, genetic mutations, physiological or reproductive malfunctions or physical deformities in any organism or its offspring, or which can become poisonous after concentration in the food chain or in combination with other substances. Persistent toxics, are defined (G.L.W.Q.A. Annex 12 (1) as "any toxic substance with a half life in water greater than eight weeks". Half life means the time required for the concentration of the substance to diminish to one-half its original value in the water body.

Phthalic acid esters, including dibutyl phthalate, diphthalate and other phthalates, are found in the effluent of certain organic chemical manufacturing plants and are toxic to aquatic life. Polychlorinated Biphenyls (PCBS), last a long time in the environment and tend to accumulate in fish and sediments. PCB concentration limits in fish tissue protect birds and animals that eat the fish. The concentration of metals, including arsenic, cadmium, chromium, copper, iron, lead, mercury, nickel, selenium is controlled to protect aquatic life and drinking water. Fluoride levels in surface waters are also limited (to a concentration of 1.2 milligrams per litre) to protect drinking water.

2. Non-Persistent Toxics

Non-persistent toxics have a half life in water of less than eight weeks and include various types of oils and waxes as well as ammonia-nitrogen. Oil and petrochemicals cause a visible sheen and an odour in receiving waters. In addition, they taint edible aquatic life and often cause tarry deposits on near-by shores. Hydrocarbons are discharged by petroleum refineries and primary steel plants; animal fats, greases and vegetable oils from food processors; and soaps, greases, vegetable oils and waxes from soap manufacturers.

Ammonia-nitrogen is found in the effluent of primary steel producers, ore concentrating mills, fertilizer plants, petroleum refiners, synthetic organic factories and food processors. Depending on water temperature and pH, ammonia-nitrogen dissociates in varying amounts, forming un-ionized ammonia which is toxic to aquatic life. Hydrogen sulphide at undissociated concentrations above 2.0 micrograms per litre adversely affects aquatic life and also imparts a disagreeable odour to water.

3. Other Substances

The concentration of dissolved oxygen in water is lowered by the oxygen-demanding degradation of biodegradable materials. If too much oxygen is consumed by the biodegradable effluent in the receiving waters (i.e. if the Biochemical Oxygen Demand (BOD) is too great), aquatic organisms can be adversely affected. Often Chemical Oxygen Demand or Total Organic Carbon are used in place of the BOD test.

Although phosphorus is essential to plant growth and microorganism activity, too much causes excess algae, weed and slime growth. Phenolics, a group of organic substances, can adversely affect the taste of water and fish. At certain concentrations, phenolics in steel mill effluent are toxic to aquatic life forms. Phenolic compounds occur naturally in wood, coal and crude oil.

C. Microbiological

Water used for body contact recreation activities should be substantially free from bacteria, fungi, or viruses that may produce enteric disorders or eye, ear, nose, throat and skin infections or other diseases and infections. Where an industrial effluent contains simple sugars; these compounds serve as food for bacterial growth. At industrial facilities, sanitary wastes must be segregated from industrial wastes and treated separately.

D. Radiological

Radioactive pollutants, most commonly found in the nuclear fuel industry, are toxic in certain concentrations. The IJC agreement states that the level of radioactivitiy in waters outside of any defined sources control area should not result in a TED 50 (total equivalent dose integrated over 50 years calculated in accordance with IJC methodology) greater than 1 millirem to the whole body from a daily ingestion of 2.2 litres of lake water per day for one year.

E. Hazardous Pollutants

Annex 10, G.L.W.Q.A. contains two lists of compounds. One list is titled "Hazardous Polluting Substances" and the other, "Potentially Hazardous Polluting Substances". Ten inorganic chlorides are classified as hazardous and three as potentially hazardous. Cobalt is extremely toxic to fish. Three cobalt compounds are classified as hazardous.

When cyanide salts dissociate in water solutions, they form hydrocyanic acid which is highly toxic to fish; two are identified as hazardous.

Magnesium, an essential element for plant and animal life, can cause a cathartic action in the gastro-intestinal tract when present in drinking water in concentrations over 125 milligrams per litre. Water containing this concentration may also have a disagreeable taste.

At concentrations above 250 milligrams per litre, sulphates in raw drinking water may cause a similar effect to excessive magnesium. Ten sulphate compounds are classified "hazardous" and three, "potentially hazardous".

10. TOXICITY TESTING

Industrial effluents are often complex and contain variable mixtures of known and unknown compounds. Many of these compounds can cause adverse effects on fish and other important aquatic organisms. If present in the receiving waters at sufficiently high concentrations, these substances can result in lethal toxicity. An arbitrary laboratory test is used as an indicator of the toxicity of an effluent before discharge into a water body.

The toxicity information in the following tables is compiled from data generated from the Ministry of the Environment Toxicity Laboratory in Rexdale and through contracts with Lakehead University in Thunder Bay.

Acute toxicity tests provide information about the relative lethality of industrial effluents. The bioassays are designed to estimate the concentration of an effluent which is lethal to 50% of the test animals in a specific time. This concentration is estimated by exposing test organisms to a logarithmic series of effluent concentrations and observing time of death. In the majority of the bioassays, 10 rainbow trout fingerlings are transferred to each of 6 to 7 different concentrations of the test effluent as well as a control. The number of mortalities is recorded at various times during the 96 hours of the bioassay.

The unit of measurement of the short term bioassay is the median lethal concentration (LC-50) qualified as to the duration of the test. Thus, a 96 hour LC50 is an estimate of the concentration that would kill half the fish in 96 hours.

The rainbow trout is used as a test organism for the 96 hour toxicity test. Research has shown that the greatest mortality due to toxicants in fish occurs within 96 hours and this 96-hour test period fits into a normal Laboratory work week. Rainbow trout (Salmo Gairdneri) has been selected as a coldwater fish for its relative ease in culturing in a laboratory environment and for the extensive literature available on its sensitivity to pollutants. In comparison to the life span of the test animal, 96 hours of exposure to a toxicant is short. The expect life span for rainbow trout is four years. Standards for the bioassay procedures including such things as temperature control and volume of test solutions (more detailed information on test protocols can be obtained from the Ministry Toxicity Unit) were chosen to allow for reproducible results. Although a standard protocol is issued for most of the bioassays in the wastewater discharge summary, modifications of the procedure are sometimes incorporated. Changes in bioassay procedures such as pH adjustment, aeration and others are sometimes used to develop a better understanding of the causes of toxicity or to better simulate receiving water conditions.

11. ENQUIRIES

Enquiries about a specific source's effluent loadings and status of abatement may be directed to:

- the owner of the source
- Ministry's Regional Office or District Offices.

Ministry addresses are provided at the end of this report.

Enquiries concerning this report and the industrial abatement program may be directed to the:

Manager, Water and Wastewater Section
Water Resources Branch
1 St. Clair Avenue West (7th Floor)
Toronto, Ontario
(416) 965-1655

/rmg
0930h

APPENDICES

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000840009 MOE REGION: Northwest DISTRICT: Thunder Bay

COMPANY NAME & PLANT LOCATION: Great Lakes Forest Products Ltd. Thunder Bay

INDUSTRIAL ACTIVITY: Pulp and Paper Mill

PROCESS TYPE: Newsprint and kraft pulp are made from logs and chips by the kraft, stone groundwood and sulphite pulping processes.

DISCHARGE TYPE: Continuous through a submerged diffuser.

RECEIVING WATERBODY: DIRECT: Kaministiquia River INDIRECT: 9 km to Lake Superior (Thunder Bay)

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 269,000

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT* (KG/DAY)
Biochemical Oxygen Demand	49,700	see comments
Suspended Solids - Total	12,200	14,000
Dissolved Solids - Total	258,000	--
Phosphorus - Total	206	269

Toxicity - The combined final effluent was sampled 6 times during 1984 and tested by Aerated 96 hr. Rainbow trout bioassays (LC50 range of 50.9 - 71.9%). (Fifty per cent of the fish survived effluent mixes consisting of 50.9% wastewater: 49.1% water to 71.9% wastewater: 28.1% water.)

COMMENTS:

Effluent quality met the Total Suspended Solids requirement and the phosphorus guideline. In addition, the company has met the BOD limit of 27,000 kg/day applicable to the Kraft Operations. Start-up of recovery of spent sulphite liquor system in 1983 has decreased the overall BOD load. Existing Control Order was to expire June 1985, but Company has filed for an extension due to postponement of Kaministiquia River study by this Ministry.

*Existing Control Order and "Guidelines for the Control of Industrial Phosphorus Discharges" - MOE October, 1976

7561g/1
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000880005 MOE REGION: Northwest DISTRICT: Thunder Bay

COMPANY NAME & PLANT LOCTION: Ogilvie Mills Ltd.
(Industrial Grain Products)
Thunder Bay

INDUSTRIAL ACTIVITY: Starch from wheat plant

PROCESS TYPE: Starch and gluten are separated from the grain.

DISCHARGE TYPE: continuous surface

RECEIVING WATERBODY: DIRECT: Kaministiquia River INDIRECT: 3 km to Lake Superior (Thunder Bay)

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 951

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Biochemical Oxygen Demand	3,150	-
Phosphorus - Total	91.8	-
Dissolved Solids -	12,000	-

Toxicity The Anamet system was sampled 1 time during 1984 and tested by Aerated 96 hr. Rainbow trout bioassays (LC50 range of <10.0%)(Fifty per cent of fish survived an effluent mix consisting of <10.0% wastewater: >90% water).

COMMENTS:

Due to continuing problems with this first-ever application of the anaerobic process to a starch/gluten plant effluent, the Control Order was extended to permit optimization of this process. The Order includes an interim BOD limit of 7500 kg/day to be met February, 1984 (met in 1983) and a limit of 900 kg/day to be met by February 28, 1985.

7561g/2
86/05/21

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001830009 MOE REGION: Northwest DISTRICT: Thunder Bay

COMPANY NAME & PLANT LOCATION: Reichhold Chemicals Ltd.
Thunder Bay

INDUSTRIAL ACTIVITY: Chemical manufacturer PROCESS TYPE: Phenolic chemicals

DISCHARGE TYPE: continuous surface

RECEIVING WATERBODY: DIRECT: Kaministiquia River INDIRECT: 7 km to Lake Superior (Thunder Bay)

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 427

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT* (KG/DAY)
Phenolics - Total	0.017	0.43
Phosphorus - Total	0.53	4.5
Total Suspended Solids	197	6.41

COMMENTS:

Discharge quality met the phosphorus and phenolic concentration guidelines, continued sludge bypassing from the new wastewater treatment system resulted in exceedance of the suspended solids guideline. System operations to be reassessed in 1985.
* Phenolic requirement 1 mg/l in Certificate of Approval; Suspended Solids guideline 15 mg/l.

7561g/3
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: --- MOE REGION: Northeast DISTRICT: Thunder Bay

COMPANY NAME & PLANT LOCATION: Ontario Hydro
Thunder Bay, TGS
Thunder Bay

INDUSTRIAL ACTIVITY: Electric Power Production PROCESS TYPE: Coal is burned

DISCHARGE TYPE: Continuous (once through condenser cooling water).

RECEIVING WATERBODY: DIRECT: Lake Superior (Thunder Bay) INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 31,350,000

PARAMETER DESCRIPTION	EXCEEDANCE (HOURS)	GUIDELINE °C	PER CENT OF OPERATING HOURS EXCEEDED
Temperature Rise ΔT	1	11.1	0.011
Effluent Temperature T max. (Maximum allowable)	0	32.2	0

COMMENTS:

One ΔT exceedance occurred due to pump testing.

7561g/4
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001830009 MOE REGION: Northwest DISTRICT: Thunder Bay

COMPANY NAME & PLANT LOCATION: Reichhold Chemicals Ltd.
Thunder Bay

INDUSTRIAL ACTIVITY: Chemical manufacturer PROCESS TYPE: Phenolic chemicals

DISCHARGE TYPE: continuous surface

RECEIVING WATERBODY: DIRECT: Kaministiquia River INDIRECT: 7 km to Lake Superior (Thunder Bay)

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 427

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT* (KG/DAY)
Phenolics - Total	0.017	0.43
Phosphorus - Total	0.53	4.5
Total Suspended Solids	197	6.41

COMMENTS:

Discharge quality met the phosphorus and phenolic concentration guidelines, continued sludge bypassing from the new wastewater treatment system resulted in exceedance of the suspended solids guideline. System operations to be reassessed in 1985.
* Phenolic requirement 1 mg/l in Certificate of Approval; Suspended Solids guideline 15 mg/l.

7561g/3
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: ---

MOE REGION: Northeast

DISTRICT: Thunder Bay

COMPANY NAME & PLANT LOCATION: Ontario Hydro
Thunder Bay, TGS
Thunder Bay

INDUSTRIAL ACTIVITY: Electric Power Production

PROCESS TYPE: Coal is burned

DISCHARGE TYPE: Continuous (once through condenser cooling water).

RECEIVING WATERBODY: DIRECT: Lake Superior (Thunder Bay)

INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 31,350,000

PARAMETER DESCRIPTION	EXCEEDANCE (HOURS)	GUIDELINE °C	PER CENT OF OPERATING HOURS EXCEEDED
Temperature Rise ΔT	1	11.1	0.011
Effluent Temperature T max. (Maximum allowable)	0	32.2	0

COMMENTS:

One ΔT exceedance occurred due to pump testing.

7561g/4
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000860205 MOE REGION: Northwest DISTRICT: Thunder Bay

COMPANY NAME & PLANT LOCATION: Abitibi-Price Inc.
Fort William Division
Thunder Bay

INDUSTRIAL ACTIVITY: Pulp and Paper Mill (Newsprint)

PROCESS TYPE: Newsprint is made from logs and chips by using the stone groundwood and Sulphonated Chemical Mechanical processes.

DISCHARGE TYPE: continuous surface

RECEIVING WATERBODY: DIRECT: Lake Superior (Thunder Bay) INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 23,700

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT* (KG/DAY)
Biochemical Oxygen Demand	9,020	**
Suspended Solids - Total	1,180	--
Dissolved Solids - Total	23,700	--
Phosphorus - Total	9.53	23.7

Toxicity - The final sewer was sampled 4 times during 1984 and tested by Aerated 96 hr. Rainbow trout bioassays (LC50 range of 24.0-50.2%) (Fifty per cent of fish survived effluent mixes consisting of 24% wastewater: 76% water to 50.2% wastewater: 49.8% water).

COMMENTS:
Effluent quality met Ministry requirements. A new Control Order was issued on April 29, 1985. The company is required to meet specific BOD and TSS loadings on the total mill effluent discharged (BOD - 14.5 metric tonnes per day and TSS - 2.5 metric tonnes per day). In addition the company is required to address effluent toxicity.

* Expired Control Order and "Guidelines for the Control of Industrial Phosphorus discharges in liquid effluents" - MOE October 1976.

** A BOD requirement of 35,000 kg/day (approx.) is applicable to the combined effluents of all three Abitibi-Price Mills. This limit and the phosphorus guideline were met, (based on Control Order which expired December 1982).

7561g/5
86/05/21

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000860106 MOE REGION: Northwest DISTRICT: Thunder Bay

COMPANY NAME & PLANT LOCATION: Abitibi-Price Inc.
Provincial Papers Division
Thunder Bay

INDUSTRIAL ACTIVITY: Pulp and Paper (Fine Papers)

PROCESS TYPE: Fine papers are made from logs by the stone groundwood process and from purchased pulp.

DISCHARGE TYPE: continuous surface

RECEIVING WATERBODY: DIRECT: Lake Superior (Thunder Bay) INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 49,800

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT* (KG/DAY)
Biochemical Oxygen Demand	3,750	**
Suspended Solids - Total	1,760	--
Dissolved Solids - Total	13,200	--
Phosphorus - Total	6.12	49.9

Toxicity - The final sewer was sampled 4 times during 1984 and tested by Aerated 96 hr. Rainbow trout bioassays (LC50 range of >100.0%) Effluent toxicity complies with Federal Fisheries Act regulations, more than 50% of fish survived in undiluted effluent.

COMMENTS:

Effluent quality met Ministry requirements. A new Control Order was issued on April 29, 1985. The company is required to meet specific BOD and TSS loadings in the total mill effluent discharged (BOD - 7.3 metric tonnes per day and TSS 2.5 metric tonnes per day). In addition, the company is required to address effluent toxicity.

* Expired Control Order and "Guidelines for the Control of Industrial Phosphorus Discharges in Liquid Effluents" - MOE October 1976.

** A BOD requirement of 35,000 kg/day (approx.) is applicable to the combined effluents of all three Abitibi-Price Mills. This limit and the phosphorus guideline were met, (based on Control Order which expired December 1982).

7561g/6
86/05/21

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000860007 MOE REGION: Northwest DISTRICT: Thunder Bay

COMPANY NAME & PLANT LOCATION: Abitibi-Price Inc.
Thunder Bay Division
Thunder Bay

INDUSTRIAL ACTIVITY: Pulp and Paper Mill (Newsprint)

PROCESS TYPE: Logs are made into newsprint by the stone groundwood and sulphite pulping processes.

DISCHARGE TYPE: continuous surface

RECEIVING WATERBODY: DIRECT: Lake Superior (Thunder Bay) INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 34,840

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT* (KG/DAY)
Biochemical Oxygen Demand	19,600	**
Suspended Solids - Total	1,150	--
Dissolved Solids - Total	56,800	--
Phosphorus - Total	14.2	34.8

Toxicity - The final effluent was sampled 8 times during 1984 and tested by Aerated 96 hr. Rainbow trout bioassays (LC50 range of 21.4-44.4%) (Fifty per cent of fish survived effluent mixes consisting of 21.4% wastewater: 78.6% water to 44.4% wastewater: 55.6% water.)

COMMENTS:

Effluent quality met Ministry requirements. A new Control Order was issued on April 29, 1985. The company is required to meet specific BOD and TSS loadings in the total mill effluent discharged (BOD - 24.5 metric tonnes/day and TSS - 2.0 metric tonnes/day). In addition, the company is required to address effluent toxicity.

* Expired Control Order and "Guidelines for the Control of Industrial Phosphorus Discharges in Liquid Effluents" - MOE October, 1976

** A BOD requirement of 35,000 kg/day (approx.) is applicable to the combined effluents of all three Abitibi-Price Mills. This limit and the phosphorus guideline were met, (based on Control Order which expired December, 1982).

7561g/7
86/05/21

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000140202 MOE REGION: Northwest DISTRICT: Thunder Bay

COMPANY NAME & PLANT LOCATION: Domtar Packaging Ltd.
Red Rock

INDUSTRIAL ACTIVITY: Kraft Pulp and Paper Mill

PROCESS TYPE: Logs and chips are made into newsprint and corrugating medium by the groundwood and kraft processes.

DISCHARGE TYPE: continuous surface

RECEIVING WATERBODY: DIRECT: Lake Superior (Nipigon Bay) INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 98,800

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT* (KG/DAY)
Biochemical Oxygen Demand	17,800	22,000
Suspended Solids - Total	4,320	4,800
Dissolved Solids - Total	48,700	--
Phosphorus - Total	3.31	98.8

Toxicity - The final effluent was sampled 19 times during 1984 and tested by Aerated 96 hr. Rainbow trout bioassays (LC50 range of 20.2->100.%) (Fifty per cent of fish survived effluent mixes consisting of 20.2% wastewater: 79.8% water to >100% wastewater: 0% water.)

COMMENTS:

Effluent quality met the Biochemical Oxygen Demand requirement and phosphorus guideline and the Total Suspended Solids limit. The effluent also met the federal toxicity requirement on most but not all occasions. Existing Control Order expired December 31, 1984. Ministry presently in negotiation with mill for new Control Order which will specify limits of BOD, TSS and toxicity for total mill effluent.

* Existing Control Order and "Guidelines for the Control of Industrial Phosphorus Discharges in Liquid Effluents" - MOE October, 1976.

7561g/8
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000830000 MOE REGION: Northwest DISTRICT: Thunder Bay

COMPANY NAME & PLANT LOCATION: Kimberly-Clark of Canada Ltd.
Terrace Bay

INDUSTRIAL ACTIVITY: Kraft Pulp Mill PROCESS TYPE: Logs are made into pulp by the kraft pulping process

DISCHARGE TYPE: continuous surface

RECEIVING WATERBODY: DIRECT: Blackbird Creek INDIRECT: Lake Superior (Jackfish Bay)

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 136,000

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT* (KG/DAY)
Biochemical Oxygen Demand	36,000	45,000
Suspended Solids - Total	6,720	8,500
Dissolved Solids - Total	178,000	--
Phosphorus - Total	53.4	136

Toxicity - The final effluent was sampled 11 times during 1984 and tested by Aerated 96 hr. Rainbow trout bioassays (LC50 range of 11.9-35.7%) (Fifty per cent of fish survived effluent mixes consisting of 11.9% wastewater: 88.1% water to 35.7% wastewater: 64.3% water.)

COMMENTS:

Effluent quality met Ministry requirements. The existing Control Order which expires December 31, 1987, includes measures to further improve effluent quality (BOD to be reduced to 40 kg/ADMT by Sept. 30, 1984 and to 30 kg/ADMT by Oct. 31, 1986), to produce an effluent non-lethal to fish (1986). The company has submitted a proposal identifying several alternatives to improve effluent dispersion and is in discussion with the Ministry what alternatives, if any, are feasible.

* Existing Control Order and "Guidelines for the Control of Industrial Phosphorus Discharges in Liquid Effluents" MOE October, 1976

7561g/9
86/05/21

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000850008 MOE REGION: Northwest DISTRICT: Thunder Bay

COMPANY NAME & PLANT LOCATION: James River Marathon Ltd. (formerly American Can) Marathon

INDUSTRIAL ACTIVITY: Kraft Pulp Mill PROCESS TYPE: Pulp is produced from chips by the kraft pulping process

DISCHARGE TYPE: continuous surface

RECEIVING WATERBODY: DIRECT: Lake Superior INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 66,000

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT* (KG/DAY)
Biochemical Oxygen Demand	14,700	45 kg/ADMT of Product
Suspended Solids - Total	5,450	--
Dissolved Solids - Total	96,800	--
Phosphorus - Total	37.3	66

Toxicity - The final effluent was sampled 11 times during 1984 and tested by Aerated 96 hr. Rainbow trout bioassays (LC50 range of <10.-74.8%) 9 of 11 LC50s were <17%. The May 15 LC50 was 31.8% and the May 28 LC50 was 74%.

COMMENTS:

Effluent met current Ministry requirements. Existing Control Order requires further stepwise reductions in Total Suspended Solids and Biochemical Oxygen Demand as follows: BOD to 35 kg/ADMT by Dec. 31, 1986 and 30 kg/ADMT by Dec. 31, 1989 and S.S. to 9,000 kg/day by Dec. 31, 1984 (met in 1983), 6,000 kg/day by Dec. 31, 1985 and 4,000 kg/day by June 30, 1988. The Order also requires compliance with the federal toxicity requirement.

* Existing Control Order and "Guidelines for the Control of Industrial Phosphorus Discharges in Liquid Effluents" - MOE October, 1976

7561g/10
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000040006 MOE REGION: Northeast DISTRICT: Sault Ste. Marie
COMPANY NAME & PLANT LOCATION: The Algoma Steel Corporation Ltd. Sault Ste. Marie

INDUSTRIAL ACTIVITY: Metallurgical Coke, Primary Iron and Steel Producer

PROCESS TYPE: Iron (blast furnaces & foundry) and steel (Basic Oxygen Furnaces) are made from coal (coke) and iron concentrates/pellet.

DISCHARGE TYPE: continuous; 7 outfalls; terminal basin discharges through a submerged diffuser

RECEIVING WATERBODY: DIRECT: St. Mary's River INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): Total Complex 503,700; Terminal Basin 331,000; Cold Mill Sewer 9,550

PARAMETER DESCRIPTION	LOAD (KG/DAY) TOTAL COMPLEX	TERMINAL BASIN	COLD MILL SEWER	TARGET LOAD (KG/DAY) TERMINAL* BASIN
Suspended Solids - Total	7,756	6,288	134	-
Cyanide - Free	75	53	-	35.1
Nitrogen - Ammonium	3,494	3,442	-	35.1
Phenolics - Total	99	98	-	113
Zinc - Filtered	10	-	-	-
Iron - Total	3,487	2,978	176	-
Iron - Dissolved	138	-	138	-
Sulphides	30	30	-	35.1
Sulphates	2,013	-	-	-
Solvent Extractables	1,572	1,324	153	-
Dissolved Solids - Total	45,215	31,109	1,928	-
Chemical Oxygen Demand	11,430	11,430	-	
Chlorides - Total	520	-	520	

COMMENTS:
The existing Control Order issued in June, 1982 and amended in June, 1983 establishes the following abatement schedule and limits:
Terminal Basin - Mar. 31, 1987 Sulphides 0.2 mg/L; Ammonia and cyanide limited in combination based on toxicity considerations
- Mar. 31, 1988 Solvent Extractables 2727 kg/day; susp. solids 8750 kg/day
- Jun. 30, 1989 Phenolics 22.7 kg/day
- Mar. 31, 1990 Solvent Extractables 1364 kg/day; susp. solids 6136 kg/day

Cold Mill Sewer- April 5, 1986 Susp. Solids 15 mg/L; Solvent Extractables 15 mg/L; Dissolved Iron 1 mg/L
* Expired Control Order
7561g/11
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000860304 MOE REGION: Northeast DISTRICT: Sault Ste. Marie

COMPANY NAME & PLANT LOCATION: St. Marys Paper Inc.
Sault Ste. Marie

OWNERSHIP CHANGED TO (June 1, 1984) Formerly known as: Abitibi Paper Company Ltd.

INDUSTRIAL ACTIVITY: Paper Mill (Groundwood Specialty)

PROCESS TYPE: Purchased Kraft pulp is added to the pulp made by the stone groundwood process to make groundwood paper specialties. Clay line added Dec/84. Now a slush pulp multi-product mill (with no white water return)

DISCHARGE TYPE: Continuous through a submerged diffuser

RECEIVING WATERBODY: DIRECT: St. Mary's River INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 28,600

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Suspended Solids - Total	2,530	7,400
Biochemical Oxygen Demand	4,800	4,700

Toxicity - The clearwater sewer was sampled 8 times during 1984 and tested by Aerated 96 hr. Rainbow trout bioassays (LC50 range of 26.4->100.%) (Fifty per cent of fish survived effluent mixes consisting of 26.4% wastewater: 73.6% water to >100% wastewater: 0% water.)

COMMENTS:

Effluent quality for BOD did not meet limits as specified in Ministry Guidelines.

7561g/12
86/05/21

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001680008 MOE REGION: Northeast DISTRICT: Sault Ste.Marie

COMPANY NAME & PLANT LOCATION: Denison Mines Ltd. Elliot Lake

INDUSTRIAL ACTIVITY: Uranium Mine (Mining/Milling)

PROCESS TYPE: Ore is mined and milled and separated into tailings and concentrates. Ammonia - based compounds are used in the recovery of uranium.

DISCHARGE TYPE: Continuous

RECEIVING WATERBODY: DIRECT: Stollery Lake to Serpent River INDIRECT: 70 km to Lake Huron (North Channel)

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 21,900

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT* (KG/DAY)	
Phosphorus	1.37	-	
Suspended Solids - Total	61.22	347	
Dissolved Solids - Total	62,450	-	
Nitrogen - Ammonia	1,195	-	
Radium 226 - Total	0.74	0.37	becquerels/L
Radium - filtered	0.05		becquerels/L/D
Magnesium - Total	442		
Nitrites	139		
Nitrates	1,870		
Uranium - Total	4.13		
Copper - Total	0.437	13.1	
Iron - Total	1.75		
Nickel - Total	2.69	21.9	
Lead - Total	3.06	8.76	
Zinc - Total	0.583	21.9	

Toxicity - The dam at Stollery Lake was sampled 2 times during 1984 and tested by Aerated 96 hr. Rainbow trout bioassays (LC50 range of 17.0->100.%)(Toxicity variability associated with seasonal climatic conditions).

COMMENTS:
Effluent quality met Ministry guidelines but not federal radioactivity limit. The Ministry and the company are investigating effluent targets and treatment systems for optimally regulating effluent pH levels so as to limit toxicity. The radioactivity limit is that set by Canada's Atomic Energy Control Board.
* "Guidelines for Environmental Control in the Ontario Mineral Industry" - October, 1981

7561/13
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001670207 MOE REGION: Northeast DISTRICT: Sault Ste. Marie

COMPANY NAME & PLANT LOCATION: Rio Algom Ltd. (Panel Mill) Elliot Lake

INDUSTRIAL ACTIVITY: Uranium Mine (Mining/Milling) PROCESS TYPE: Ore is mined and milled and separated into tailings and concentrates.

DISCHARGE TYPE: Continuous

RECEIVING WATERBODY: DIRECT: Quirke Lake to Serpent River INDIRECT: 65 km to Lake Huron (North Channel)

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 7,480

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT* (KG/DAY)	
Phosphorus	0.18	8.92	
Suspended Solids - Total	14.5	134	
Dissolved Solids - Total	18,123	-	
Nitrogen - Ammonia	39.2	-	
Radium 226 - Total	0.24	-	becquerels/L
Sulphates	9,854	-	
Copper - Total	0.08		
Nickel - Total	0.174	-	
Lead - Total	0.25		
Zinc - Total	0.26		
Calcium - Total	3220	-	
Cobalt - Total	0.195	-	
Magnesium - Total	163	-	
Manganese - Total	2.06	-	
Iron - Total	1.03	-	
Nitrate - unfiltered reactive	99.3	-	
Radium 226 - filtered	0.11	-	becquerels/L
Uranium - Total	1.66	-	

Toxicity - The final effluent was sampled 2 times during 1984 and tested by Aerated 96 hr. Rainbow trout bioassays (LC50 range of 10.->100.%) (Fifty per cent of fish survived effluent mixes consisting of 10% wastewater: 90% water to >100% wastewater: 0% water.)

COMMENTS:

Effluent quality met Ministry effluent guidelines. Radioactivity limit was set by Canada's Atomic Energy Control Board.

* "Guidelines For Environmental Control in the Ontario Mineral Industry" - October, 1981

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001670108 MOE REGION: Northeast DISTRICT: Sault Ste. Marie

COMPANY NAME & PLANT LOCATION: Rio Algom Ltd. (Quirke Mill) Elliot Lake

INDUSTRIAL ACTIVITY: Uranium Mine (Mining/Milling)

PROCESS TYPE: Ore is mined and milled and separated into tailings and concentrates. Ammonia - based compounds are used in recovery of uranium

DISCHARGE TYPE: Continuous

RECEIVING WATERBODY: DIRECT: Serpent River INDIRECT: 67 km to Lake Huron (North Channel)

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 13,200

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT* (KG/DAY)	
Phosphorus	1.71	-	
Suspended Solids - Total	211	223	
Dissolved Solids - Total	39,750	-	
Nitrogen - Ammonia	587	-	
Radium 226 - Total	0.194	1.0	becquerels/L
Sulphates	21,280	-	
Copper - Total	0.34	)	
Nickel - Total	0.73	) 13.2	
Lead - Total	0.59	)	
Zinc - Total	0.272	)	
Cobalt - Total	0.344		
Iron - Total	50.4		-
Nitrite - unfiltered reactive	8.12		
Nitrate - unfiltered reactive	1040		
Radium 226 - filtered	0.068		becquerels/L
Uranium - Total	3.48		
Kjeldhal Nitrogen - Total	663		

COMMENTS:
Effluent quality met all Ministry guidelines. The Ministry and the company are investigating targets and treatment systems for optimally regulating effluent pH levels so as to limit toxicity. Radioactivity limit was set by Canada's Atomic Energy Control Board.
* Guidelines for Environmental Control in the Ontario Mineral Industry" - October, 1981
7561g/15
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 000167-03-0-6 MOE REGION: Northeast DISTRICT: Sault Ste. Marie

COMPANY NAME & PLANT LOCATION: Rio Algom Ltd. (Stanleigh Mill)

INDUSTRIAL ACTIVITY: Uranium concentrator

PROCESS TYPE: Ore is separated into tailings and concentrates.

DISCHARGE TYPE: Continuous

RECEIVING WATERBODY: DIRECT: Serpent River INDIRECT: Km to North Channel (Lake Huron)

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 2,745

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)	
Calcium - Total	5,974		
Cobalt - Total	45.9		
Copper - Total	0.251		
Magnesium - Total	148		
Iron - Total	9.16		
Nickel - Total	0.589		
Nitrite - Unfiltered Reactive	2.45		
Nitrate - Unfiltered Reactive	77.1		
Lead - Total	0.229		
Phosphorus - Total	1.21		
Radium 226 - Filtered	0.037		Becquerels/L
Radium 226 - Total	0.074		Becquerels/L
Dissolved Solids - Total	34.5		
Suspended Solids - Total	55.1		
Sulphates	15,090		
Uranium - Total	3.59		
Zinc - Total	6.23		
Nitrogen - Ammonia	56.6		
Kjeldhal Nitrogen - Total	82.7		

COMMENTS:

7561g/16
85/10/03

85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000980003 MOE REGION: Northeast DISTRICT: Sudbury

COMPANY NAME & PLANT LOCATION: E. B. Eddy Forest Products Ltd.
Espanola

INDUSTRIAL ACTIVITY: Kraft Pulp and Paper Mill

PROCESS TYPE: Logs and chips are converted by the kraft pulping process into paper and pulp.

DISCHARGE TYPE: continuous at shore

RECEIVING WATERBODY: DIRECT: Spanish River INDIRECT: 47 km. to Lake Huron (North Channel)

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 94,300

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT* (KG/DAY)
Biochemical Oxygen Demand	3,040	3,630**
Suspended Solids - Total	5,060	14,500
Dissolved Solids	?	-

COMMENTS:

Effluent loading met Ministry requirements as specified in the May, 1980 Control Order.** Company is continuing its investigation of measures to optimize the treatment system performance.

* "Federal Pulp and Paper Effluent Regulations and Guidelines" - 1971

7561g/17
86/05/21

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001700004 MOE REGION: Northeast DISTRICT: Sudbury

COMPANY NAME & PLANT LOCATION: Falconbridge Ltd.
Falconbridge,

INDUSTRIAL ACTIVITY: Nickel and Copper Producer PROCESS TYPE: Converts ore into matte

DISCHARGE TYPE: Continuous decant flow from main tailings area

RECEIVING WATERBODY: DIRECT: Coniston Creek to Wanapitei River INDIRECT: 80 km. to Lake Huron (Georgian Bay)

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 33,500

PARAMETER DESCRIPTION	LOAD (KG/DAY)		REQUIREMENT* (KG/DAY)
Suspended Solids - Total	332		498
Sulphates	14,830		-
Iron - Total	40.2		-
Nickel - Total	28.8	)	
Copper - Total	1.05	)	33.5
Phosphorus	-		4.5

COMMENTS:

* "Guideline for Environmental Control in the Ontario Mineral Industry" - October, 1981

7561g/18
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001700103 MOE REGION: Northeast DISTRICT: Sudbury

COMPANY NAME & PLANT LOCATION: Falconbridge Ltd.
Onaping Mine
Onaping Falls

INDUSTRIAL ACTIVITY: Nickel Copper Producer

PROCESS TYPE: Ore is mined and separated into tailings and concentrates.

DISCHARGE TYPE: Intermittent (7 months) mine water decant

RECEIVING WATERBODY: DIRECT: Onaping River to Vermillion River to Spanish River

INDIRECT: 125 km to Lake Huron (North Channel)

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 317

PARAMETER DESCRIPTION	LOAD (KG/DAY)		REQUIREMENT* (KG/DAY)
Suspended Solids - Total	2.56		4.76
Iron - Total	0.10		-
Nickel - Total	1.08	)	0.317
Copper - Total	0.013	)	-
Sulphates	115		-

COMMENTS:

* "Guidelines for Environmental Control in the Ontario Mineral Industry" - October, 1981

7561g/19
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001700301 MOE REGION: Northeast DISTRICT: Sudbury

COMPANY NAME & PLANT LOCATION: Falconbridge Ltd.
Moose Lake Wastewater Treatment System

INDUSTRIAL ACTIVITY: Nickel and Copper Producer PROCESS TYPE:

DISCHARGE TYPE: Continous

RECEIVING WATERBODY: DIRECT: Moose Lk. to Onaping R. to Vermillion R. to Spanish R. INDIRECT: 125 km. to Lake Huron (North Channel)

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 32,600

PARAMETER DESCRIPTION	LOAD (KG/DAY)		REQUIREMENT (KG/DAY)
Suspended Solids - Total	75.4		
Iron - Total	10.4	)	
Nickel - Total	46.1	)	88.14 (Total for Both Parameters)
Copper - Total	0.966		-
Sulphates	17,700		

COMMENTS:

No discharge January, July and August. Major changes were made during 1983 in the collection of runoff waters and a Ministry control program is in place through conditions on the 1983 C. of A. for the phased reduction of nickel levels. This program extends to 1988.

7561g/20
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001690700 MOE REGION: Northeast DISTRICT: Sudbury

COMPANY NAME & PLANT LOCATION: INCO Ltd. Garson Mine

INDUSTRIAL ACTIVITY: Nickel and Copper Producer PROCESS TYPE: Mining and crushing of ore

DISCHARGE TYPE: Continuous from mine water treatment system

RECEIVING WATERBODY: DIRECT: Junction Creek to Vermillion River to Spanish River INDIRECT: 86 km. to Lake Huron (North Channel)

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 3,100

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT* (KG/DAY)
Suspended Solids - Total	41.2	46.5
Ammonia Nitrogen	4.68	26.8
Iron - Total	0.71	**
Nickel - Total	1.91	)
Copper - Total	0.31	) 3.1
Zinc - Total	0.26	)

COMMENTS:

* "Guidelines for Environmental Control in the Ontario Mineral Industry" - October, 1981
** Total Iron requirements are under review. 1984 load exceeds existing requirement.

7561g/21
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001690304 MOE REGION: Northeast DISTRICT: Sudbury

COMPANY NAME & PLANT LOCATION: INCO Ltd.
Coppercliff Creek Wastewater Treatment Plant

INDUSTRIAL ACTIVITY: Nickel/Copper mining and milling PROCESS TYPE:

DISCHARGE TYPE: Continuous

RECEIVING WATERBODY: DIRECT: Junction Creek to Vermillion River to Spanish River INDIRECT: 70 km. to Lake Huron (North Channel)

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 102,000

PARAMETER DESCRIPTION	LOAD (KG/DAY)		REQUIREMENT* (KG/DAY)
Suspended Solids - Total	766		1,530
Ammonia Nitrogen	697		1,020
Iron - Total	109		**
Nickel - Total	58	)	102
Copper - Total	17.3	)	

COMMENTS:

* "Guidelines for Environmental Control in the Ontario Mineral Industry" - October, 1981
** Total Iron requirements are under review. 1984 load exceeds existing requirement.

7561g/22
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001690502 MOE REGION: Northeast DISTRICT: Sudbury

COMPANY NAME & PLANT LOCATION: INCO LTD. Sulphur Products Dept. Sudbury (Copper Cliff)

INDUSTRIAL ACTIVITY: Sulphuric Acid Production PROCESS TYPE: Acid is produced in the catalytic bed process from nickel refinery SO_2 emissions and pyrrhotite roasting.

DISCHARGE TYPE: Continuous

RECEIVING WATERBODY: DIRECT: Kelly Lake to Junction Creek to Vermillion River to Spanish River INDIRECT: 62 km. to Lake Huron (North Channel)

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 1,130

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT* (KG/DAY)
Suspended Solids - Total	11.4	
Nickel	0.35	0.13
Iron	1.33	-

COMMENTS:

* Objectives for the Control of Industrial Waste Discharges in Ontario"

7561g/23
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001690601 MOE REGION: Northeast DISTRICT: Sudbury

COMPANY NAME & PLANT LOCATION: INCO Ltd.
Nolin Creek Wastewater Treatment Plant

INDUSTRIAL ACTIVITY: Nickel/Copper mining and milling PROCESS TYPE:

DISCHARGE TYPE: Continuous

RECEIVING WATERBODY: DIRECT: Nolin Creek to Junction Creek to Vermillion River to Spanish River INDIRECT: 77 km. to Lake Huron (North Channel)

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 11,100

PARAMETER DESCRIPTION	LOAD (KG/DAY)		REQUIREMENT* (KG/DAY)
Suspended Solids - Total	161		166.5
Ammonia Nitrogen	65.9		111
Iron - Total	13.6		-
Nickel - Total	7.34	)	
Copper - Total	3.36	)	11.1
Zinc - Total	0.90	)	

COMMENTS:

* "Guidelines for Environmental Control in the Ontario Mineral Industry" - October, 1981

7561g/24
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001530005 MOE REGION: Northeast DISTRICT: North Bay

COMPANY NAME & PLANT LOCATION: MacMillan Bloedel Limited
Sturgeon Falls Division
Sturgeon Falls

INDUSTRIAL ACTIVITY: Hardboard Construction Products and corrugating medium are produced

PROCESS TYPE: Two different processes are used. Chips are thermal refined and glued to form hard board products. Chips are converted by the neutral sulphite semi-chemical process into corrugating medium.

DISCHARGE TYPE: Continuous, seven days a week.

RECEIVING WATERBODY: DIRECT: Sturgeon River to Lake Nipissing to French River Main Channel INDIRECT: 124 km to Lake Huron (Georgian Bay)

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 12,100

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Biochemical Oxygen Demand	50,700	-
Suspended Solids - Total	2,200	2,900*

COMMENTS:

The mill operated in compliance with the suspended solids discharge requirements of a November, 1982 Control Order. A December, 1983 Amendment further requires the company to limit oxygen - demanding discharges so as to maintain a minimum 47% dissolved oxygen saturation level in the Sturgeon River at all times and to conduct a research program (completion by October 30, 1987) leading to application (by December, 1987) for a Certificate of Approval for treatment works capable of achieving the maximum practicable reduction of BOD and to within 12 months of issuance of the certificate have these works in operation. Additionally, the order requires the company to submit by December 31, 1989 terms of reference for a study of further measures to reduce BOD loading to 10 tonnes/day (on any day) and to meet Ministry fish toxicity requirements.

* (30 consecutive operating day avg.)

7561g/25
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 000189-00-0-3 MOE REGION: Southwest DISTRICT: Owen Sound

COMPANY NAME & PLANT LOCATION: Amerock Inc. Meaford

INDUSTRIAL ACTIVITY: Hardware manufacturer

PROCESS TYPE: cabinet hardware is formed, assembled, coated.

DISCHARGE TYPE: Intermittent - five day continuous flow - 7 am to 12:30 am through an open outfall.

RECEIVING WATERBODY: DIRECT: Drain INDIRECT: 0.0 Km to Georgian Bay (Lake Huron)

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 682

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Cyanide - available	0.72	
Chromium - total	0.168	
Copper - Total	2.90	
Nickel - Total	0.511	
Suspended Solids - Total	11.4	
Zinc - Total	1.19	
Aluminum - Total	0.138	
Phosphate - Filtered Reactive	1.50	
Phosphorus - Total	13.1	

COMMENTS:

7561g/26
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001840107 MOE REGION: Southwest DISTRICT: Owen Sound

COMPANY NAME & PLANT LOCATION: Ontario Hydro Bruce N.P.D.S.
Domestic Sewage Treatment Plant
Tiverton

INDUSTRIAL ACTIVITY: Plant treats sanitary wastes from the generating station complex PROCESS TYPE:

DISCHARGE TYPE:

RECEIVING WATERBODY: DIRECT: Lake Huron INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 1,930

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Phosphorus	.52	1.5

COMMENTS:

Effluent quality met the phosphorus guideline.

7561g/27
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001840107 MOE REGION: Southwest DISTRICT: Owen Sound

COMPANY NAME & PLANT LOCATION: Ontario Hydro Bruce N.P.D.S.
Heavy Water Plant
Tiverton

INDUSTRIAL ACTIVITY: Heavy water is produced for use in nuclear reactors

PROCESS TYPE:

DISCHARGE TYPE:

RECEIVING WATERBODY: DIRECT: Lake Huron INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 2,500,000

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT* (KG/DAY)
Sulphides	9.04	215

COMMENTS:

Discharge quality met the sulphide guideline.

7561g/29
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001840107 MOE REGION: Southwest DISTRICT: Owen Sound

COMPANY NAME & PLANT LOCATION: Ontario Hydro
Bruce N.P.D.S.
Tiverton

INDUSTRIAL ACTIVITY: Electric Power Production PROCESS TYPE: Nuclear Power

DISCHARGE TYPE: Continuous (once through condenser cooling water).

RECEIVING WATERBODY: DIRECT: Lake Superior (Thunder Bay) INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 2,500,000

PARAMETER DESCRIPTION	EXCEEDANCE (HOURS)	GUIDELINE C	PER CENT OF OPERATING HOURS EXCEEDED
Temperature Rise ΔT	0	11.1	0
Effluent Temperature T max. (Maximum allowable)	0	32.2	0

COMMENTS:

Discharge quality met the temperature guideline.

7561g/28
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000140707 MOE REGION: Southwest DISTRICT: Clinton (Sub-office)

COMPANY NAME & PLANT LOCATION: Domtar Chemicals Ltd.
Sifto Salt Division
Goderich

INDUSTRIAL ACTIVITY: Table salt plant PROCESS TYPE: Salt is mined and purified for use.

DISCHARGE TYPE: continuous

RECEIVING WATERBODY: DIRECT: Maitland River INDIRECT: Lake Huron

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 11,500

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Dissolved Solids - Total	102,500	--
Chlorides	64,400	--

COMMENTS:

Environmental impact of chloride discharge on the Maitland River is being reassessed to determine if loading reduction is required.

7561g/29
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000910109 MOE REGION: Southwest DISTRICT: Sarnia

COMPANY NAME & PLANT LOCATION: Dow Chemical Canada Inc.
Sarnia

INDUSTRIAL ACTIVITY: Chlorinated compound manufacture PROCESS TYPE: Using brine and feed from the petroleum refineries a wide range of chlorine related products are made.

DISCHARGE TYPE: continuous through nine outfalls

RECEIVING WATERBODY: DIRECT: St. Clair River INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 742,000

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Suspended Solids - Total	2,720	11,130
Phenolics - Total	3.2	14.8
Total Organic Carbon	800	-

COMMENTS:

Three parameters are monitored on a daily basis and limits have been set on two parameters. These limits are being met. However, the Ministry is in the process of setting specific limits for contaminants of concern.

7561g/31
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000070201 MOE REGION: Southwest DISTRICT: Sarnia

COMPANY NAME & PLANT LOCATION: Esso Chemicals Canada Ltd. Sarnia

INDUSTRIAL ACTIVITY: Manufacturer of plastic resins

PROCESS TYPE: Natural gas and feed from the petroleum refinery are used to make linear low molecular weight polymer.

DISCHARGE TYPE: continuous through an extended outfall

RECEIVING WATERBODY: DIRECT: St. Clair River INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 21,500

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Suspended Solids - Total	188	323
Phenolics - Total	0.30	0.43
Solvent Extractables	16.0	323
Nitrogen - Ammonia	9.90	215
Total Organic Carbon	178	-
Dissolved Solids - Total	1,835	-

COMMENTS:

Discharge quality met Ministry industrial effluent concentration guidelines. The Ministry is in the process of setting specific limits for contaminants of concern.

7561g/32
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000070102 MOE REGION: Southwest DISTRICT: Sarnia

COMPANY NAME & PLANT LOCATION: Esso Petroleum Canada
Sarnia

INDUSTRIAL ACTIVITY: Petroleum Refinery

PROCESS TYPE: Crude oil is converted into a wide range of petroleum products.

DISCHARGE TYPE: continuous through three outfalls

RECEIVING WATERBODY: DIRECT: St. Clair River INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 215,700

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Suspended Solids - Total	290	3,236
Phenolics - Total	0.60	4.3
Solvent Extractables	176	2,157
Nitrogen - Ammonium	56.0	2,157
Total Organic Carbon	868	-
Dissolved Solids - Total	9,625	-
Sulphides	0.0	-

COMMENTS:

Discharge quality met the Ministry Petroleum Refineries effluent concentration guidelines.

7561g/33
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: MOE REGION: Southwest DISTRICT: Sarnia

COMPANY NAME & PLANT LOCATION: Fiberglas Canada Inc.
Sarnia

INDUSTRIAL ACTIVITY: Manufacture of glass wool insulation PROCESS TYPE: insulation is produced from silicate sands

DISCHARGE TYPE: Continuous

RECEIVING WATERBODY: DIRECT: Cole Drain INDIRECT: St. Clair River

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 7,700

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT* (KG/DAY)
Phenolics - Total	0.20	0.15

COMMENTS:

Discharge quality exceeded the Ministry industrial effluent concentration guideline for phenolics due mainly to spills. The Company has constructed a berm to contain spills.

7561g/34
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000480004 MOE REGION: Southwest DISTRICT: Sarnia

COMPANY NAME & PLANT LOCATION: Petrosar Ltd.
Corunna

INDUSTRIAL ACTIVITY: Petroleum refinery

PROCESS TYPE: Primary function to provide feedstock for Dupont, Polymer and Union Carbide.

DISCHARGE TYPE: continuous through a submerged diffuser

RECEIVING WATERBODY: DIRECT: St. Clair River INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 6,580

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Suspended Solids - Total	70.2	99.0
Phenolics - Total	0.43	0.13
Solvent Extractables	10.4	65.8
Nitrogen - Ammonia	19.5	65.8
Total Organic Carbon	81.1	-

COMMENTS:

Discharge quality met the Ministry Petroleum Refinery Effluent concentration Guidelines except for phenolics. Extensive water recycle at this refinery results in a low volume discharge but conversely makes it more difficult to meet the concentration limits. The phenolics exceedance was primarily a result of upset conditions in August and the company is investigating in plant changes for improved control of phenolic emissions.

7561g/34
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000030007 MOE REGION: Southwest DISTRICT: Sarnia

COMPANY NAME & PLANT LOCATION: Polysar Ltd. Sarnia

INDUSTRIAL ACTIVITY: Synthetic rubber manufacture

PROCESS TYPE: Feedstock from refineries in the Sarnia area are converted into several grades of synthetic rubber

DISCHARGE TYPE: continuous through five outfalls

RECEIVING WATERBODY: DIRECT: St. Clair River INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 255,400

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Suspended Solids - Total	1,726	3,620
Phenolics - Total	0.92	4.5
Solvent Extractables	58.7	181
Nitrogen - Ammonia	283	2,554
Total Organic Carbon	1,690	-
Chemical Oxygen Demand	3,690	8,170

COMMENTS:

Discharge quality met all Ministry requirements set by Control Order and based on MOE industrial effluent concentration guidelines. The Ministry is in the process of setting specific limits for contaminants of concern.

7561g/36
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000490102 MOE REGION: Southwest DISTRICT: Sarnia

COMPANY NAME & PLANT LOCATION: Suncor Sunoco Group Sarnia

INDUSTRIAL ACTIVITY: Petroleum refinery

PROCESS TYPE: Crude oil is converted into a wide range of petroleum products.

DISCHARGE TYPE: continuous at shore

RECEIVING WATERBODY: DIRECT: St. Clair River INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 109,700

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Suspended Solids - Total	255	1,650
Phenolics - Total	1.08	2.19
Solvent Extractables	94.3	1,097
Nitrogen - Ammonia	31.1	1,097
Sulphides	2.77	-

COMMENTS:

Discharge quality met the Ministry Petroleum Refinery Effluent concentration guidelines.

7561g/36
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000080309 MOE REGION: Southwest DISTRICT: Sarnia

COMPANY NAME & PLANT LOCATION: Dupont Canada Inc. Corunna

INDUSTRIAL ACTIVITY: Plastic Resin Manufacturer

PROCESS TYPE: Feedstock (ethylene) from the petroleum refineries in Sarnia is used to make plastics.

DISCHARGE TYPE: continuous at shore

RECEIVING WATERBODY: DIRECT: St. Clair River INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 49,660

PARAMETER DESCRIPTION	LOAD (KG/DAY	REQUIREMENT (KG/DAY)
Phenolics - Total	0.25	0.99

COMMENTS:

Discharge quality met Ministry industrial effluent concentration guidelines.

7561g/37
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000120006 MOE REGION: Southwest DISTRICT: Sarnia

COMPANY NAME & PLANT LOCATION: Ethyl Canada Inc. Corunna

INDUSTRIAL ACTIVITY: Automobile fuel additive manufacturer PROCESS TYPE: Tetraethyl lead is made from a lead-sodium alloy and ethyl chloride.

DISCHARGE TYPE: continuous through an extended outfall

RECEIVING WATERBODY: DIRECT: St. Clair River INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 33,900

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Lead - Total	27.2	17.0

COMMENTS:

Lead concentrations were reduced by 50% over 1983 levels but at the same time the Ministry reduced by the 50% target load (i.e., from 1 ppm to 0.5 ppm) to conform with conditions on Certificate of Approval for control equipment. The Ministry is in the process of setting specific limits for contaminants of concern.

7561g/39
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000380105 MOE REGION: Southwest DISTRICT: Sarnia

COMPANY NAME & PLANT LOCATION: Union Carbide Canada Ltd. Corunna

INDUSTRIAL ACTIVITY: Manufacturer of plastic resins

PROCESS TYPE: Feedstock from neighbouring petroleum refineries is converted into polyethylene resins.

DISCHARGE TYPE: batch discharge through an extended outfall

RECEIVING WATERBODY: DIRECT: St. Clair River INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 2,360

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Suspended Solids - Total	31.3	35.4
Phosphorous - Total	3.20	4.5
Dissolved Solids - Total	482	-
Total Organic Carbon	15.3	-

COMMENTS:

Discharge quality met the Ministry industrial effluent concentration guidelines.

7561g/39
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000510107 MOE REGION: Southwest DISTRICT: Sarnia

COMPANY NAME & PLANT LOCATION: Shell Canada Ltd. Corunna

INDUSTRIAL ACTIVITY: Petroleum refinery

PROCESS TYPE: Crude oil is converted into a wide range of petroleum products

DISCHARGE TYPE: continuous through two outfalls

RECEIVING WATERBODY: DIRECT: Talford Creek INDIRECT: St. Clair River

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 234,700

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Suspended Solids - Total	(0)*	3,520
Phenolics - Total	0.42	4.69
Solvent Extractables	88.0	2,347
Nitrogen - Ammonia	4.8	2,347
Total organic carbon	537	-
Sulphides	0.0	-
Solids - Total	3,600	-

COMMENTS:

Discharge quality met the Ministry Petroleum Refinery Effluent concentration guidelines.

* Intake exceeded discharge

7561g/40
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: MOE REGION: Southwest DISTRICT: Sarnia

COMPANY NAME & PLANT LOCATION: Ontario Hydro
Lambton TGS
Courtright

INDUSTRIAL ACTIVITY: Electric Power Production PROCESS TYPE: Coal is burned

DISCHARGE TYPE: Continuous (once through condenser cooling water).

RECEIVING WATERBODY: DIRECT: St. Clair River INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 81,400.000

PARAMETER DESCRIPTION	EXCEEDANCE (HOURS)	GUIDELINE °C	PER CENT OF OPERATING HOURS EXCEEDENCE
Temperature Rise T	176	16.7	2.01
Effluent Temperature T max. (Maximum allowable)	178	32.2	2.03

COMMENTS:

All exceedance were due to insufficient cooling water capacity and fish plugging the intake screens. The T Max. exceedances were a result of high inlet temperatures in August and September when the percentage occurrence of exceedances was 19% and 4.4% respectively.

7561g/42
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000390203 MOE REGION: Southwest DISTRICT: Sarnia

COMPANY NAME & PLANT LOCATION: Canadian Industries Ltd.
Lambton Works
Courtright

INDUSTRIAL ACTIVITY: Fertilizer producer

PROCESS TYPE: Sulphuric acid, phosphate ore and nitrogen are converted into several grades of fertilizer.

DISCHARGE TYPE: continuous at shore

RECEIVING WATERBODY: DIRECT: St. Clair River INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 288,000

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Phosphorous - Total	14.9	288
Nitrogen - Ammonium	124	288
Fluoride	35.7	-
Nitrates - Total Dissolved	262	-

COMMENTS:

Discharge quality met the Ministry industrial effluent concentration guidelines.

7561g/42
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001060003 MOE REGION: Southwest DISTRICT: Windsor

COMPANY NAME & PLANT LOCATION: Wickes Manufacturing Company Ltd.
(formerly: Windsor Bumper Company Ltd.)
A Division of Gulf & Western (Canada) Ltd.
Windsor

INDUSTRIAL ACTIVITY: Metal Plating

PROCESS TYPE: Steel parts for the automobile industry are plated with nickel.

DISCHARGE TYPE: continuous five days a week

RECEIVING WATERBODY: DIRECT: Little River INDIRECT: 3.3 km to Detroit River

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 1,930

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Suspended Solids - Total	53.3	29.0
Iron - Total	0.44	32.8
Nickel - Total	1.93	1.93
Chromium - Total	1.05	1.93

COMMENTS:

In March 1985, Company began an upgrading of the waste treatement system, the objective of which is to return to a compliance situation.

7561g/44
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001040005 MOE REGION: Southwest DISTRICT: Windsor

COMPANY NAME & PLANT LOCATION: Canadian Salt Company Ltd. Windsor

INDUSTRIAL ACTIVITY: Salt Mine PROCESS TYPE: Salt is mined and prepared for use.

DISCHARGE TYPE: continuous

RECEIVING WATERBODY: DIRECT: Detroit River INDIRECT: Lake Erie

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 19,050

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Chlorides	10,670	-
Dissolved Solids - Total	16,769	-

COMMENTS:

7561g/44
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000020107 MOE REGION: Southwest DISTRICT: Windsor

COMPANY NAME & PLANT LOCATION: Ford Motor Co. of Canada Ltd. Windsor

INDUSTRIAL ACTIVITY: Automobile engine and transmission manufacture

PROCESS TYPE: Engine block and parts are cast in the iron foundry; parts are machined and assembled into engines and transmissions.

DISCHARGE TYPE: continuous six days a week through a submerged outfall

RECEIVING WATERBODY: DIRECT: Detroit River INDIRECT: Lake Erie

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 90,700

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Suspended Solids - Total	3,620	3,005
Phenolics - Total	35	1.82
Iron - Total	336	1,530
Chemical Oxygen Demand	3,340	-
Fluoride	400	-
Solvent Extractables	0.0	

COMMENTS:

Effluent quality met total iron guidelines but exceeded phenolics and total suspended solids limits. Company has eliminated some high phenol wastestreams and continues to investigate for others. The waste treatment plant appears to be at capacity with respect to suspended solids, including iron. Company has retained consultant to provide advice for the correction of the phenol and suspended solids problems. Target Loads were set by MOE industrial effluent concentration guidelines.

7561g/45
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000010009 MOE REGION: Southwest DISTRICT: Windsor

COMPANY NAME & PLANT LOCATION: Allied Canada Inc.
(formerly: Allied Chemical Canada Inc.)
Amherstburg.

INDUSTRIAL ACTIVITY: Manufacture of soda ash PROCESS TYPE: Soda ash (sodium carbonate) is made from table salt (sodium chloride).

DISCHARGE TYPE: continuous

RECEIVING WATERBODY: DIRECT: Detroit River INDIRECT: Lake Erie

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 138,900

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Suspended Solids - Total	1,040	2,085
Dissolved Solids - Total	1,450,000	--
Chlorides	822,000	850,000
Nitrogen - Ammonium	236	209
Fluorides - Total	60.0	

COMMENTS:

Meets target loads for suspended solids and chloride concentration guidelines and best practical technology. Ammonium nitrogen exceeded is under investigation. 1985 data indicates reduced loading.

7561g/46
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001020007 MOE REGION: Southwest DISTRICT: Windsor

COMPANY NAME & PLANT LOCATION: H. J. Heinz Company of Canada Ltd. Leamington

INDUSTRIAL ACTIVITY: Vegetable processor

PROCESS TYPE: A wide variety of food products are made from produce grown locally.

DISCHARGE TYPE: continuous through an open outfall

RECEIVING WATERBODY: DIRECT: Selkirk Drain INDIRECT: 1.3 km Lake Erie

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 19,100

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Phosphorous - Total	9.27	19.1
Biochemical Oxygen Demand - 5 Day	159	288
Suspended Solids - Total	279	288
Chemical Oxygen Demand	232	-

COMMENTS:

Effluent quality met Ministry target loads which are based on MOE's industrial effluent concentration guidelines.

7561g/47
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001050004 MOE REGION: Southwest DISTRICT: Windsor

COMPANY NAME & PLANT LOCATION: Omstead Food Ltd. Wheatley

INDUSTRIAL ACTIVITY: Fish and vegetable processer

PROCESS TYPE: Fish is processed and vegetables grown locally are processed/frozen.

DISCHARGE TYPE: continuous, when plant is operating, through an open outfall

RECEIVING WATERBODY: DIRECT: Muddy Creek INDIRECT: 1.0 km Lake Erie

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 3,170

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Phosphorus - Total	4.44	4.5
Biochemical Oxygen Demand - 5 Day	128	48
Suspended Solids - Total	164	48

COMMENTS:

The previous phosphorus guideline exceedance has been corrected by the addition of phosphorus removal facilities. While there was an increase in production levels, reductions in BOD and suspended solids loadings continued as a result of waste treatment plant upgrading with much improved performance evident over the final six months of the year. Further improvements expected during 1985. Target Loads are based on MOE's industrial effluent concentration guidelines.

7561g/48
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000020404 MOE REGION: Southwest DISTRICT: London

COMPANY NAME & PLANT LOCATION: Ford Motor Company Ltd.
Assembly Plant
St. Thomas

INDUSTRIAL ACTIVITY: Automobile Assembly Plant PROCESS TYPE: Auto painting and assembly.

DISCHARGE TYPE: Intermittent through an on-shore outfall; weekend flow and pollutants drop off.

RECEIVING WATERBODY: DIRECT: Dodd Creek to Kettle Creek INDIRECT: 38 Km to Lake Erie

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 14,260

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Biochemical Oxygen Demand	69.2	141
Chemical Oxygen Demand	609	1410
Chromium - Total	0.67	2.8
Phenolics	0.031	0.014
Phosphorus - Total	23.1	14.1
Suspended Solids - Total	141	212
Solvent Extractables	18.0	212
Zinc - Total	1.01	0.85

COMMENTS:

1984 flows reported by Ford staff were inaccurate and resulted in exceedance of target loads. 1985 flows are lower and show plant to be in compliance.

7561g/50
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000520205 MOE REGION: West Central DISTRICT: Hamilton

COMPANY NAME & PLANT LOCATION: Texaco Canada Inc. (Nanticoke Refinery) Jarvis

INDUSTRIAL ACTIVITY: Petroleum Refinery

PROCESS TYPE: Crude oil is converted into a wide range of petroleum products.

DISCHARGE TYPE: continuous through a submerged diffuser

RECEIVING WATERBODY: DIRECT: Lake Erie INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 4,240

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Solvent Extractables	6.73	42.4
Phenolics - Total	0.042	0.09
Sulphides	0.177	-
Nitrogen - Ammonia	3.26	42.4
Suspended Solids - Total	9.38	63.6

COMMENTS:

Effluent quality met target load.

7561g/50
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001840008 MOE REGION: West Central DISTRICT: Hamilton

COMPANY NAME & PLANT LOCATION: Ontario Hydro (TGS)
(Ash Lagoon)
Nanticoke

INDUSTRIAL ACTIVITY: Electricity is generated using coal as a fuel.

PROCESS TYPE: Leachate from the coal ash deposited in a landfill.

DISCHARGE TYPE: Continuous

RECEIVING WATERBODY: DIRECT: Lake Erie INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 63,800*

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Chromium - Filtered	1.75	
Iron - Dissolved	0.081	
Suspended Solids - Total	203	
Dissolved Solids - Total	17,200	
Phosphorus - Filtered	0.268	
Sulphates	12,400	

COMMENTS:

Data applies to effluent from ash lagoon only. Wastewater from lagoon is mixed with condensed cooling water prior to discharge.
* Effluent flow applies only to ash lagoon, not total discharge of cooling water plus ash lagoon effluent.

7561g/52
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001840008 MOE REGION: West Central DISTRICT: Hamilton

COMPANY NAME & PLANT LOCATION: Ontario Hydro
Nanticoke TGS
Nanticoke

INDUSTRIAL ACTIVITY: Electric power production PROCESS TYPE: Coal is burned

DISCHARGE TYPE: Continuous (once through condenser cooling water).

RECEIVING WATERBODY: DIRECT: Lake Erie INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 248,900,000

PARAMETER DESCRIPTION	EXCEEDANCE (HOURS)	GUIDELINE* °C	PER CENT OF OPERATING HOURS EXCEEDED
Temperature Rise ΔT	18	12.5	0.205
Effluent Temperature T max. (Maximum allowable)	0	35.0	0

COMMENTS:

There were 18 hours of ΔT exceedances due to insufficient tempering water capacity.

* Nanticoke TGS Tempering Permit in effect July 1, 1983, for a five year period.

7561g/52
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000950105 MOE REGION: West Central DISTRICT: Hamilton

COMPANY NAME & PLANT LOCATION: Stelco Inc. Lake Erie Works
Nanticoke

INDUSTRIAL ACTIVITY: Primary steel producer

PROCESS TYPE: Coke ovens with a by-product plant, blast furnace, basic oxygen furnace and a hot strip mill are used to make steel.

DISCHARGE TYPE: continuous through an open outfall

RECEIVING WATERBODY: DIRECT: Centre Creek INDIRECT: 0.15 km to Lake Erie

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 32,400

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Suspended Solids - Total	285	392
Lead	3.81	10.5
Solvent Extractables	68.6	164.6
Cyanide - Free	1.72	2.6
Nitrogen - Ammonia	6.52	24.8
Phenols	0.07	0.47
Iron	16.9	39.2
Zinc	2.44	15.7
Phosphorus	3.72	26.1
Chromium	0.725	6.5
Cadmium - Total	0.155	
Chlorine - Free	3.24	

Toxicity - The pond E and pond 4 was sampled 7 times during 1984 and tested by Aerated 96 hr. Rainbow trout bioassays (LC50 range of >100.0%) (More than 50% of fish survived in undiluted effluent.)

COMMENTS:

All effluent requirements were met.

7561g/53
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000920009 MOE REGION: West Central DISTRICT: Cambridge

COMPANY NAME & PLANT LOCATION: Silknit Ltd. Textile Division
Cambridge

INDUSTRIAL ACTIVITY: Textile Producer PROCESS TYPE: Yarn is dyed and woven into textiles.

DISCHARGE TYPE: continuous through an open outfall

RECEIVING WATERBODY: DIRECT: Speed River to Grand River INDIRECT: 159 km to Lake Erie

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 1,550

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Phosphorus - Total	0.57	4.5
Biochemical Oxygen Demand	31.4	27.3
Suspended Solids - Total	12.8	40.9

COMMENTS:

Effluent quality met Total Suspended Solids and phosphorus target loads but exceeded Biochemical Oxygen Demand limit. Plant ceased operation as of October, 1984.

7561g/54
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001470004 MOE REGION: West Central DISTRICT: Cambridge

COMPANY NAME & PLANT LOCATION: Solarware Cambridge

INDUSTRIAL ACTIVITY: Enamelled Porcelain Goods Manufacturer PROCESS TYPE: Sinks, tubs, etc. are enamelled.

DISCHARGE TYPE: five day continuous flow 7 am to 6 pm through a drain

RECEIVING WATERBODY: DIRECT: Speed River to Grand River INDIRECT: 159 km to Lake Erie

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 372

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Suspended Solids - Total	6.56	6.6
Nickel - Total	0.22	0.44
Zinc - Total	0.014	0.44
Iron - Total	0.98	0.44

COMMENTS:

Effluent quality met zinc, Total Suspended Solids, nickel guidelines but exceeded iron limits. In 1984 the company began a treatment optimization program. Total suspended solids were reduced 50% from 1983 by improved process control over the metal precipitation system. 1985 iron loads are continuing to be reduced to target load. Target Loads set by MOE industrial effluent concentration guidelines.

7561g/56
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001490002 MOE REGION: West Central DISTRICT: Cambridge

COMPANY NAME & PLANT LOCATION: Tend-R-Fresh Poultry
Petersburg

INDUSTRIAL ACTIVITY: Poultry processor

PROCESS TYPE: Birds are slaughtered, processed, readied for retail sale.

DISCHARGE TYPE: seven day continuous flow through an open outfall

RECEIVING WATERBODY: DIRECT: Alder Creek to Nith River to Grand River INDIRECT: 195 km to Lake Erie

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 1,150

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Phosphorus - Total	6.18	4.5
Biochemical Oxygen Demand	99.8	42.95
Suspended Solids - Total	115	42.95
Solvent Extractables	500	

COMMENTS:

Effluent quality exceeds Ministry guidelines. An abatement program was negotiated and initiated with the new owner in the fall of 1984 to commence treatment plant modification in the 1985, (complete installation expected late 1985). Target Loads set by MOE industrial effluent concentration guidelines.

7561g/56
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001480003 MOE REGION: West Central DISTRICT: Cambridge

COMPANY NAME & PLANT LOCATION: The Stanley Works Ltd. New Hamburg

INDUSTRIAL ACTIVITY: Hardware manufacturer PROCESS TYPE: Makes tools, plates hardware, etc.

DISCHARGE TYPE: five day continuous flow 7 am to 12:30 am through an open outfall

RECEIVING WATERBODY: DIRECT: Nith River to Grand River INDIRECT: 203 km to Lake Erie

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 219

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Suspended Solids - Total	4.13	4.43
Copper - Total	0.043	0.3
Nickel - Total	0.063	0.3
Chromium - Total	0.017	0.3
Zinc - Total	0.104	0.3
Cyanide - Available	0.022	0.06

COMMENTS:

Effluent quality met all Ministry guidelines. Target Loads set by MOE industrial effluent concentration guidelines.

7561g/57
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001440007 MOE REGION: West Central DISTRICT: Cambridge

COMPANY NAME & PLANT LOCATION: J. M. Schneider Inc.
Ayr

INDUSTRIAL ACTIVITY: Food processor PROCESS TYPE: Poultry is deep fried and packaged for retail sales.

DISCHARGE TYPE: seven day continuous flow through a submerged outfall

RECEIVING WATERBODY: DIRECT: Nith River to Grand River INDIRECT: 196 km to Lake Erie

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 368

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Phosphorus - Total	1.92	4.5
Biochemical Oxygen Demand	34.9	5.46
Suspended Solids - Total	43.9	5.46
Nitrogen - Ammonium	6.86	3.64
Solvent extractives (oil & grease)	19.5	5.46

COMMENTS:

Due to worsening loads for 1984 company was required to construct wastewater treatment facilities on site. Construction was stopped in August 1984 due to financial constraints. Facility completed March 1985 with start up April 01, 1985. Debugging has taken 2 months. Processing plant shutdown June to August 1985 due to strike.

7561g/58
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001500008 MOE REGION: West Central DISTRICT: Hamilton

COMPANY NAME & PLANT LOCATION: International Minerals and Chemicals Dunnville

INDUSTRIAL ACTIVITY: Fertilizer Manufacturer

PROCESS TYPE: Phosphate ore, sulphuric acid and phosphoric acid are used to make fertilizer.

DISCHARGE TYPE: continuous at shoreline

RECEIVING WATERBODY: DIRECT: Grand River INDIRECT: 3 km to Lake Erie

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 15,642

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Phosphorus	232	15.6
Suspended Solids - Total	115	235
Fluoride	157	-

COMMENTS:

The discharge exceeded the Ministry phosphorus guideline. The plant shutdown production beginning July, 1984, but the stormwater treatment system has been kept in operation. Flows during last six months of 1984 and 1985 are approximately 1,500 m3/day. 1985 phosphorus loadings are approximately 13 kg/day.

7561g/59
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001600105 MOE REGION: West Central DISTRICT: Welland

COMPANY NAME & PLANT LOCATION: INCO Metals Ltd.
Port Colborne

INDUSTRIAL ACTIVITY: Non-ferrous metals refinery

PROCESS TYPE: Electrolytic processes are used to recovery pure metals like nickel, copper silver, gold, etc.

DISCHARGE TYPE: continuous at shore

RECEIVING WATERBODY: DIRECT: Lake Erie INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 18,500

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Suspended Solids - Total	283	278
Nickel - Total	16.9	18.5

COMMENTS:

Effluent quality met Ministry guidelines within limits of analytical error.

7561g/60
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001590009 MOE REGION: West Central DISTRICT: Welland

COMPANY NAME & PLANT LOCATION: Can Oxy-Durez
Dunlop
Fort Erie

INDUSTRIAL ACTIVITY: Organic chemicals producer PROCESS TYPE: Specialty organics are made.

DISCHARGE TYPE: continuous through an open outfall

RECEIVING WATERBODY: DIRECT: Frenchmans Creek to Niagara River INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 180

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Biochemical Oxygen Demand	<0.22	2.71
Suspended Solids - Total	<0.22	2.71
Phenolics	0.0089	0.004
Phosphorus	<0.013	4.54

COMMENTS:

Company is investigating either effluent treatment or discharge to sanitary sewer for phenol reduction.

7561g/62
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001580000 MOE REGION: West Central DISTRICT: Welland

COMPANY NAME & PLANT LOCATION: GNB Batteries Canada Inc.
Gould Manufacturing of Canada Ltd.
Fort Erie

INDUSTRIAL ACTIVITY: Battery Manufacturer PROCESS TYPE: Lead is melted and cast into batteries.

DISCHARGE TYPE: continuous for five days through an open outfall

RECEIVING WATERBODY: DIRECT: Frenchman's Creek to Niagara River INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 158.9

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Biochemical Oxygen Demand	<0.51	2.38
Suspended Solids - Total	3.03	2.38
Lead - Total	0.259	0.16

COMMENTS:

Effluent quality did not meet Ministry guidelines for suspended solids and lead. Company has identified particulate lead as problem and will install control equipment in 1985.

7561g/62
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001570001 MOE REGION: West Central DISTRICT: Welland

COMPANY NAME & PLANT LOCATION: Fleet Manufacturing Company Ltd.
Gilmore
Fort Erie

INDUSTRIAL ACTIVITY: Sonar/Aircraft Parts Manufacturer PROCESS TYPE: Fabricator of aircraft parts

DISCHARGE TYPE: continuous

RECEIVING WATERBODY: DIRECT: Frenchmans Creek to Niagara River INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 2.04

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Phosphorus	0.001	4.54
Biochemical Oxygen Demand	<0.005	0.031
Suspended Solids - Total	0.02	0.031
Chromium - Total	0.0014	0.002
Cadmium - Total	0.00066	

COMMENTS:

Company is not a significant source of phosphorous and BOD. Target loads for Chromium and Suspended Solids were met.

7561g/64
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000950204 MOE REGION: West Central DISTRICT: Welland

COMPANY NAME & PLANT LOCATION: Stelco Welland Tube Works
Welland

INDUSTRIAL ACTIVITY: Pipe fabricator PROCESS TYPE: Flat steel is made into very large diameter pipe.

DISCHARGE TYPE: continuous through an open outfall

RECEIVING WATERBODY: DIRECT: Lyons Creek to Welland River to Niagara River INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 77

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Suspended Solids - Total	0.235	1.15
Solvent Extractable (oil/grease)	0.054	1.15
Iron - Total	0.025	

COMMENTS:

Discharge quality met Ministry targets. Company was shut down for most of 1984.

7561g/64
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001610005 MOE REGION: West Central DISTRICT: Welland

COMPANY NAME & PLANT LOCATION: Atlas Steel Company
Welland

INDUSTRIAL ACTIVITY: Stainless steel producer

PROCESS TYPE: Electric furnaces are used to make various grades of stainless steel.

DISCHARGE TYPE: continuous

RECEIVING WATERBODY: DIRECT: Welland River to Niagara River INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 7,200

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENTS (KG/DAY)
Phosphorus	0.94	7.2
Biochemical Oxygen Demand	26.6	108
Suspended Solids - Total	477	108
Iron	31.7	-
Solvent extractives (oil/grease)	14.1	108
Cadmium - Total	0.0049	
Chromium - Total	0.114	

COMMENTS:

Flow prorated to actual days of operation which were 47.3% of day in 1984. Company has hired a consultant to correct excessive solids loading.

7561g/65
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000950303 MOE REGION: West Central DISTRICT: Welland

COMPANY NAME & PLANT LOCATION: Stelco Page Hersey Works
Welland

INDUSTRIAL ACTIVITY: Pipe fabricator

PROCESS TYPE: Small diameter seamless pipe is made from steel billets.

DISCHARGE TYPE: continuous through a diffuser

RECEIVING WATERBODY: DIRECT: Welland Canal INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 11,992

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Suspended Solids - Total	25.1	180
Solvent Extractables	30.9	180
Iron - Total	4.55	12.0

COMMENTS:

Effluent quality meets all Ministry guidelines. Target Loads are set by MOE industrial effluent concentration guidelines.

7561g/66
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001550102 MOE REGION: West Central DISTRICT: Welland

COMPANY NAME & PLANT LOCATION: Cyanamid Canada Inc.
Welland Plant
Niagara Falls

INDUSTRIAL ACTIVITY: Chemical Manufacturer PROCESS TYPE:

DISCHARGE TYPE: continuous through an open outfall

RECEIVING WATERBODY: DIRECT: Miller Creek to Welland River to Niagara River INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 25,150

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Ammonia - Free	2,608	252
Phosphorus	35	25.2
Biochemical Oxygen Demand	246	377
Suspended Solids - Total	350	377
Nitrogen - Total	5,740	1,509
Nitrate	1,423	1,260
Dissolved Solids - Total	14,700	
Kjeldahl Nitrogen	560	

Toxicity - The final effluent was sampled 11 times during 1984 and tested by Aerated 96 hr. Rainbow trout bioassays (LC50 range of 8.1 - >100%) Installation of wastewater pH adjustment system has produced a non-lethal effluent.

COMMENTS:

The Amending Control Order established concentration limits which were met on the April 1, 1985 deadline as follows: BOD 15 mg/L, Suspended Solids 10 mg/L, ammonia and urea 10 mg/L, nitrate 50 mg/L and phosphorus 1 mg/L.

7561g/67
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000370304 MOE REGION: West Central DISTRICT: Welland

COMPANY NAME & PLANT LOCATION: B. F. Goodrich Niagara Falls

INDUSTRIAL ACTIVITY: Manufacturer of plastic resins PROCESS TYPE: Polyvinyl resins are made from vinyl chloride monomer.

DISCHARGE TYPE: continuous through an open outfall

RECEIVING WATERBODY: DIRECT: Welland River to Niagara River INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 2,080

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Phosphorous	0.96	4.54
Biochemical Oxygen Demand	26.9	31
Suspended Solids - Total	15.9	31
Vinyl Chloride monomer	1.09	2.1
Chemical Oxygen Demand	82.1	-
Ammonium - Filtered	0.60	-

COMMENTS:

Effluent quality met all four Ministry target loads.

7561g/68
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000020503 MOE REGION: West Central DISTRICT: Welland

COMPANY NAME & PLANT LOCATION: Ford Motor Company Niagara Falls

INDUSTRIAL ACTIVITY: Assembly of automobile safety glass

PROCESS TYPE: Two glass panes with a plastic layer in between is cured to form safety glass.

DISCHARGE TYPE: continuous (treated sanitary and contact cooling water)

RECEIVING WATERBODY: DIRECT: Welland River to Niagara River INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 2,726

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Phosphorus	4.95	4.5
Biochemical Oxygen Demand	7.34	40.9
Suspended Solids - Total	13.70	40.9
Iron - Total	1.61	
Kjeldahl Nitrogen	10.1	
Ammonium - Filtered	4.69	

COMMENTS:

Effluent quality meets all Ministry guidelines within limits of analytical error.

7561g/69
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001550003 MOE REGION: West Central DISTRICT: Welland

COMPANY NAME & PLANT LOCATION: Cyanamid Canada Inc. Niagara Falls

INDUSTRIAL ACTIVITY: Inorganic Chemicals Manufacturer PROCESS TYPE: Calcium carbide compounds are made using electric furnaces.

DISCHARGE TYPE: continuous through two outfalls

RECEIVING WATERBODY: DIRECT: Niagara River and power canal to Niagara River INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 32,400

PARAMETER DESCRIPTION	LOAD (KG/DAY) 1984	REQUIREMENT (KG/DAY)
Phosphorus	1.35	32.4
Suspended Solids - Total	169	486
Cyanide - Available	0.175	

COMMENTS:

Effluent quality met all MOE guidelines. Target Loads set by MOE industrial effluent concentration guidelines.

7561g/70
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001650001 MOE REGION: West Central DISTRICT: Welland

COMPANY NAME & PLANT LOCATION: Norton Company
Niagara Falls

INDUSTRIAL ACTIVITY: Abrasives manufacturer PROCESS TYPE: Bauxite is processed in an electric arc furnace into abrasive oxides.

DISCHARGE TYPE: continuous through a submerged outfall

RECEIVING WATERBODY: DIRECT: Welland River to Niagara River INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 9,830

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Phosphorus	<0.1	9.8
Biochemical Oxygen Demand	<10.6	148
Total Suspended Solids	113	148
Solvent Extractables	10.4	

COMMENTS:

Effluent quality met all Ministry guidelines. Company not a significant source of BOD and phosphorus.

7561g/71
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001660000 MOE REGION: West Central DISTRICT: Welland

COMPANY NAME & PLANT LOCATION: Sohio (formerly Canadian Carborundum) Niagara Falls

INDUSTRIAL ACTIVITY: Abrasive manufacturer

PROCESS TYPE: Abrasive oxides are made from bauxite in an electric arc furnaces.

DISCHARGE TYPE: continuous through an outfall

RECEIVING WATERBODY: DIRECT: Welland River to Niagara River INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 14,100

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Phosphorus	Non-detected	14.1
Biochemical Oxygen Demand	19.7	213
Suspended Solids - Total	191	213
Solvent Extractables	58.9	

COMMENTS:

Effluent quality met all Ministry guidelines.

7561g/72
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001930007 MOE REGION: West Central DISTRICT: Welland

COMPANY NAME & PLANT LOCATION: Canadian Canners Ltd.
St. Davids

INDUSTRIAL ACTIVITY: Food Processor PROCESS TYPE:

DISCHARGE TYPE: batch discharge usually in fall of year

RECEIVING WATERBODY: DIRECT: Four Mile Creek INDIRECT: 12 km to Lake Ontario

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 143

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Biochemical Oxygen Demand	2.0	2.14

COMMENTS:

Effluent quality met the Ministry target load which was set by the MOE industrial effluent concentration guidelines.

7561g/73
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001630003 MOE REGION: West Central DISTRICT: Welland

COMPANY NAME & PLANT LOCATION: General Motors of Canada Ltd.
St. Catharines

INDUSTRIAL ACTIVITY: Iron foundry and engine manufacturer PROCESS TYPE: Coke and iron (pigs and scrap) are charged to a cupola to be processed into iron and cast as engine parts.

DISCHARGE TYPE: continuous for five days a week through an outfall

RECEIVING WATERBODY: DIRECT: Welland Canal INDIRECT: 9.2 km to Lake Ontario

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 120,900

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Biochemical Oxygen Demand	524	
Suspended Solids - Total	1,480	1,818
Phenolics - Total	12.4	2.4
Phosphorus	0.417	
Solvent Extractables	52.3	
Kjeldahl Nitrogen	608	

COMMENTS:

A consultant has been hired to investigate sources of phenol and recommend abatement measures. Company analytical procedures are also being checked.

7561g/74
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000140509 MOE REGION: West Central DISTRICT: Welland

COMPANY NAME & PLANT LOCATION: Domtar Fine Papers
St. Catharines

INDUSTRIAL ACTIVITY: Paper mill

PROCESS TYPE: Pulp and clean wastepaper is converted into posterboard

DISCHARGE TYPE: continuous through an open outfall

RECEIVING WATERBODY: DIRECT: Old Welland Canal to Twelve Mile Creek INDIRECT: 9.1 km to Lake Ontario

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 9,850

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Biochemical Oxygen Demand	709	354
Suspended Solids - Total	267	354
Dissolved Solids - Total	3,080	-

Toxicity - The final effluent was sampled 2 times during 1984 and tested by Aerated 96 hr. Rainbow trout bioassays (LC50 range of >100.0%) Effluent toxicity complies with Federal Fisheries Act regulations. (More than 50% of fish survived in undiluted effluent.)

COMMENTS:

Effluent quality met Total Suspended Solids guideline but not Biochemical Oxygen Demand Limit. Company will continue flow reduction measures to reduce BOD loading.

7561g/76
86/05/21

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000830208 MOE REGION: West Central DISTRICT: Welland

COMPANY NAME & PLANT LOCATION: Kimberly Clark of Canada Ltd. St. Catharines

INDUSTRIAL ACTIVITY: Paper mill PROCESS TYPE: Pulp and clean waste paper is made into tissue.

DISCHARGE TYPE: continuous through an open outfall

RECEIVING WATERBODY: DIRECT: Old Welland Canal to Twelve Mile Creek INDIRECT: 10.0 km to Lake Ontario

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 8,260

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Biochemical Oxygen Demand	339	362
Suspended Solids - Total	50	362
Dissolved Solids - Total	1,880	-

Toxicity - The lagoon #2 effluent was sampled 2 times during 1984 and tested by Aerated 96 hr. Rainbow trout bioassays (LC50 range of >100.0%) Effluent toxicity complies with Federal Fisheries Act regulations. (More than 50% of fish survived in undiluted effluent.)

COMMENTS:

Effluent quality meets Ministry quidelines.

7561g/76
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001620004 MOE REGION: West Central DISTRICT: Welland

COMPANY NAME & PLANT LOCATION: Beaver Wood Fibre Company
Thorold

INDUSTRIAL ACTIVITY: Paper mill

PROCESS TYPE: Paperboard is made from pulp and clean wastepaper.

DISCHARGE TYPE: continuous through a submerged outfall

RECEIVING WATERBODY: DIRECT: Beaverdams Creek to Twelve Mile Creek INDIRECT: 13.3 km to Lake Ontario

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 14,700

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Biochemical Oxygen Demand	3,910	2,483
Suspended Solids - Total	1,430	904
Dissolved Solids - Total	4,740	-

Toxicity - The final effluent was sampled 2 times during 1984 and tested by Aerated 96 hr. Rainbow trout bioassays (LC50 range of 61.6 - 80.6%) (Fifty per cent of fish survived effluent mixes consisting of 61.6% wastewater: 38.4% water to 80.6% wastewater: 19.4% water.)

COMMENTS:

A "control order" survey is in progress.

7561g/77
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000930008 MOE REGION: West Central DISTRICT: Welland

COMPANY NAME & PLANT LOCATION: The Ontario Paper Company Ltd.
Allanburg
Thorold

INDUSTRIAL ACTIVITY: Newsprint producer

PROCESS TYPE: Newsprint is made from pulp from logs by three pulping processes (sulphite, thermal-mechanical and chemi-mechanical) and from deinked newspaper pulp.

DISCHARGE TYPE: continuous into a buried part of the Old Welland Canal

RECEIVING WATERBODY: DIRECT: Twelve Mile Creek INDIRECT: 12.4 km to Lake Ontario

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 119,000

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Biochemical Oxygen Demand	11,500	18,100
Suspended Solids - Total	6,690	6,800
Dissolved Solids - Total	56,800	-

Toxicity - The combined final effluent was sampled 2 times during 1984 and tested by Aerated 96 hr. Rainbow trout bioassays (LC50 range of 76.0 - >100%) (Fifty per cent of fish survived effluent mixes consisting of 76.0% wastewater: 24% water to >100% wastewater: 0% water.)

COMMENTS:

Effluent quality meets Ministry guidelines.

7561g/75
85/10/03

INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000940007 MOE REGION: West Central DISTRICT: Welland

COMPANY NAME & PLANT LOCATION: Fraser Inc.
Thorold

INDUSTRIAL ACTIVITY: Paper mill

PROCESS TYPE: Fine paper is made from pulp and from deinked ledger paper.

DISCHARGE TYPE: continuous through an outfall

RECEIVING WATERBODY: DIRECT: Twelve Mile Creek INDIRECT: 12 km to Lake Ontario

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 25,300

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Biochemical Oxygen Demand	2,410	1,810
Suspended Solids - Total	1,220	1,500
Dissolved Solids - Total	8,090	-

Toxicity - The final effluent was sampled 2 times during 1984 and tested by Aerated 96 hr. Rainbow trout bioassays (LC50 range of 24.7 - 39.2%) (Fifty per cent of fish survived effluent mixes consisting of 24.7% wastewater: 75.3% water to 39.2% wastewater: 60.8% water.)

COMMENTS:

Effluent quality met Ministry Total Suspended Solids requirements but not Biochemical Oxygen Demand.

7561g/80
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000140400 MOE REGION: West Central DISTRICT: Welland

COMPANY NAME & PLANT LOCATION: Domtar Construction Materials Ltd. (Allanburg) Thorold

INDUSTRIAL ACTIVITY: Paper mill PROCESS TYPE: Pulp is converted into building paper.

DISCHARGE TYPE: continuous into a buried portion of the Old Welland Canal.

RECEIVING WATERBODY: DIRECT: Old Welland Canal to Twelve Mile Creek INDIRECT: 15.1 km to Lake Ontario

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 774

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Biochemical Oxygen Demand	625	453
Suspended Solids - Total	309	453

Toxicity - The final effluent was sampled 2 times during 1984 and tested by Aerated 96 hr. Rainbow trout bioassays (LC50 range of 7.6 - 8.7%) (Fifty per cent of fish survived effluent mixes consisting of 7.6% wastewater: 92.4% water to 8.7% wastewater: 91.3% water.)

COMMENTS:

A Section 126 (EPA) survey planned for 1985 was put on hold. The company is presently negotiating with the City of Thorold to discharge to the municipal sewer system.

7561g/81
85/10/03

INDUSTRIAL MONITORING INFORMATION SYSTEM

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001460005 MOE REGION: West Central DISTRICT: Hamilton
COMPANY NAME & PLANT LOCATION: Dofasco Inc. Hamilton

INDUSTRIAL ACTIVITY: Primary iron and steel producer PROCESS TYPE: All phases of iron & steel production including 246 Coke ovens, 4 Blast Furnaces, 2 B.O.F. shops and numerous rolling mills.

DISCHARGE TYPE: continuous through five shore outfalls
RECEIVING WATERBODY: DIRECT: Hamilton Harbour INDIRECT: Lake Ontario

AVERAGE ANNUAL
EFFLUENT FLOW (CUBIC METRES/DAY): 804,000

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Phosphorus	0	804
Biochemical Oxygen Demand	819	12,000
Suspended Solids - Total	13,100	12,000
Nitrogen - Ammonia	1,140	1,608
Phenolics - Total	14.6	16.0
Solvent Extractables	464	12,000
Cyanide	31.3	80.0
Iron - Total	3,550	8,040
Zinc - Total	95.0	804
Chromium - Total	3.25	804

COMMENTS:
Effluent quality met eight of the nine target loads (suspended solids was in exceedence). Future reductions in suspended solids will be accomplished by eliminating overflows from the #1 Hot Mill Filtration Plant and #1 Melt Shop slurry sump with the possible installation of a Blast Furnace recirculating water system. Phenol will be reduced by improved on line treatment time for the Zimpro/HCN tower blowdown thus reducing overflows to sewer and by diversion of the Biological Treatment Plant effluent to the Sanitary Sewer. All 1984 loadings are NET data, arithmetic means. An outfall from the new #2 Hot Strip Mill was added in 1984.

7561g/81
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000950006
COMPANY NAME & PLANT LOCATION: Stelco Inc. Hilton Works Hamilton

MOE REGION: West Central

DISTRICT: Hamilton

INDUSTRIAL ACTIVITY: Primary Iron and Steel Producer

PROCESS TYPE: All phases of iron and steel production including coke making, ironmaking, steelmaking and rolling.

DISCHARGE TYPE: continuous through five shore outfalls

RECEIVING WATERBODY: DIRECT: Hamilton Harbour

INDIRECT: Lake Ontario

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 1,183,000

PARAMETER DESCRIPTION	LOAD (KG/DAY	REQUIREMENT (KG/DAY)
Suspended Solids - Total	18,804	17,700
Nitrogen - Ammonia	525	2,366
Phenolics - Total	43.1	23.7
Solvent Extractables	3,244	17,700
Cyanide	152	118
Iron - Total	5,575	11,800
Zinc - Total	171	1,180
Chemical Oxygen Demand	17,700	-

COMMENTS:
Since phosphorus and Biochemical Oxygen Demand loads are consistently 98% below the target loads these two pollutants are not being reported. Effluent quality requirements for four of the seven pollutants were met. Total suspended solids loading was slightly excessive due to difficulties in adjusting to increased flows at the East Side Filtration Plant. These difficulties have been overcome and levels have returned to normal in 1985. Cyanide loadings increased in 1984 because of upset conditions at the #1 and #2 By-product Final Coolers. Conversion of these coolers to indirect cooling (#2 Byproducts - October, 1985, #1 Byproducts - April 30, 1987) will eliminate these upset conditions. Phenol loadings which were reduced from 1983 were still excessive in 1984. The company has identified fugitive sources of phenol and an abatement program has been established. Phenol loadings thus far are in compliance. Target loads are set by MOE industrial effluent concentration guidelines.

7561g/82
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000020008 MOE REGION: Central DISTRICT: Halton-Peel

COMPANY NAME & PLANT LOCATION: Ford Motor Company
Oakville

INDUSTRIAL ACTIVITY: Automobile and Truck Assembly Plant PROCESS TYPE:

DISCHARGE TYPE: continuous through an extended outfall weekends flow and pollutants drop off.

RECEIVING WATERBODY: DIRECT: Lake Ontario INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 12,147

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Phosphorus	4.65	12.1
Biochemical Oxygen Demand	345	182
Suspended Solids - Total	154	182
Solvent Extractables (oil/grease)	23.0	182
Phenolics	0.099	0.24
Chromium - Total	0.288	

COMMENTS:

Effluent quality met phosphorus, Total Suspended Solids, phenolics and solvent extractable target loads. The biochemical Oxygen Demand limit was exceeded, however, loadings have been reduced by more than 60% since 1978. Company is negotiating possible discharge to municipal sewage system.

7561g/83
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000530006 MOE REGION: Central DISTRICT: Halton-Peel

COMPANY NAME & PLANT LOCATION: Petro Canada Products Ltd. (formerly BP Oil Ltd.) Oakville

INDUSTRIAL ACTIVITY: Petroleum Refinery

PROCESS TYPE: Crude oil is converted into a wide range of petroleum products.

DISCHARGE TYPE: continuous through an extended outfall

RECEIVING WATERBODY: DIRECT: Lake Ontario INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 3,913

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Solvent Extractables (Oil/grease)	6.92	39.1
Phenolics	0.173	0.078
Nitrogen - Ammonia	48.0	39.1
Suspended Solids - Total	54.6	58.7
Sulphides	2.3	-

COMMENTS:

Discharge quality met Ministry petroleum refinery effluent concentration guidelines for solvent extractables and suspended solids but exceeded guidelines for phenolics and ammonia. Loadings of these effluent constituents have been reduced by 40% and 35% respectively since 1978.

7561g/84
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000520106 MOE REGION: Central DISTRICT: Halton-Peel

COMPANY NAME & PLANT LOCATION: Texaco Canada Ltd.
Port Credit

INDUSTRIAL ACTIVITY: Specialty Solvent Separation PROCESS TYPE: Petroleum solvents are extracted from gasoline fractions.

DISCHARGE TYPE: continuous through an on-shore outfall

RECEIVING WATERBODY: DIRECT: Lake Ontario INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 6,810

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Chemical Oxygen Demand	65.7	
Phenolics	0.109	0.136
Solvent Extractables	15.3	68.1
Suspended Solids - Total	79.4	102
Sulphides	0.0	-
Nitrogen Ammonia	0.0	

COMMENTS:

The discharge quality met Ministry petroleum refinery effluent concentration guidelines.

7561g/85
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000130104 MOE REGION: Central DISTRICT: Halton-Peel

COMPANY NAME & PLANT LOCATION: Gulf Canada Products Ltd.
Mississauga

INDUSTRIAL ACTIVITY: Petroleum Refinery

PROCESS TYPE: Crude oil is converted into a wide range of petroleum products.

DISCHARGE TYPE: Storm water continuous through an on-shore outfall, process continuous through an extended outfall

RECEIVING WATERBODY: DIRECT: Lake Ontario

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 16,280 (flow rate is for process effluent only does not include once through cooling water)

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Phenols	1.41	0.32
Solvent Extractables	311	163
Nitrogen - Ammonia	50.5	163
Suspended Solids - Total	341	244
Sulphides	1.07	

COMMENTS:

"Discharge quality met Ministry petroleum refinery effluent concentration guideline for ammonia but exceeded the guidelines for phenolics, suspended solids and solvent extractables. The suspended solids and phenolic exceedences were primarily a result of upset conditions at the wastewater treatment plant which were corrected in 1984. To further reduce phenol emissions, the company has diverted storm water to the wastewater treatment plant. Compliance is expected in 1985."

7561g/86
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: MOE REGION: Central DISTRICT: Toronto

COMPANY NAME & PLANT LOCATION: Ontario Hydro
Lakeview TGS
Toronto

INDUSTRIAL ACTIVITY: Electric Power Production PROCESS TYPE: Coal is burned

DISCHARGE TYPE: Continuous (once through condenser cooling water).

RECEIVING WATERBODY: DIRECT: Lake Ontario

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 101,200,000

PARAMETER DESCRIPTION	EXCEEDANCE (HOURS)	GUIDELINE °C	PER CENT OF OPERATING HOURS EXCEEDED
Temperature Rise ΔT	4	11	0.046
Effluent Temperature T max. (Maximum allowable)	0	32.2	0

COMMENTS:

Four hours ΔT exceedance due to insufficient cooling water supply.

7561g/87
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000600007 MOE REGION: Central DISTRICT: Peterborough

COMPANY NAME & PLANT LOCATION: Borg-Warner Chemicals Cobourg

INDUSTRIAL ACTIVITY: Chemical manufacturer of ABS Resins

PROCESS TYPE: Acrylonitrile, Butadiene Styrene monomers converted into ABS polymer.

DISCHARGE TYPE: continuous through a submerged diffuser

RECEIVING WATERBODY: DIRECT: Lake Ontario INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 1,590

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Chemical Oxygen Demand	110	-
Biochemical Oxygen Demand	19.5	54.6
Total Suspended Solids	49.8	54.6
Phosphorus - Total	3.96	4.5
Kjeldahl Nitrogen	50.1	-

COMMENTS:

All effluent quality guidelines were met. Target loads are set by MOE Industrial Effluent Concentration Guidelines. Primary treatment system is being upgraded in 1985.

7561g/88
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000820100 MOE REGION: Central DISTRICT: Peterborough

COMPANY NAME & PLANT LOCATION: Eldorado Nuclear Ltd.
Welcome Waste Site
Port Hope

INDUSTRIAL ACTIVITY: Closed Low Level Radioactive Waste Disposal Site

PROCESS TYPE: Leachate is collected and chemically treated

DISCHARGE TYPE: continuous submerged

RECEIVING WATERBODY: DIRECT: Lake Ontario INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 890

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)	
Arsenic	0.226	0.277	
Radioactivity (Ra_{226})-Dissolved	0.065	0.37	becquerel/L

COMMENTS:

Decommissioning of the site is planned to commence in 1987. Effluent quality limits are set in AECB operating licence.

7561g/89
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000820209 MOE REGION: Central DISTRICT: Peterborough

COMPANY NAME & PLANT LOCATION: Eldorado Nuclear Ltd.
Port Granby

INDUSTRIAL ACTIVITY: Active low level radioactive waste disposal site

PROCESS TYPE: Leachate is collected and chemically treated.

DISCHARGE TYPE: Batch Discharge

RECEIVING WATERBODY: DIRECT: Lake Ontario INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 319

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)	
Radioactivity (Ra_{226})-Dissolved	0.173	0.37	becquerels/L
Arsenic	0.096	0.15	

COMMENTS:

Decommissioning of the site is planned to commence in 1987. Effluent quality limits are set in AECB operating licence.

7561g/90
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000820001 MOE REGION: Central DISTRICT: Peterborough

COMPANY NAME & PLANT LOCATION: Eldorado Nuclear Ltd.
Port Hope

INDUSTRIAL ACTIVITY: Uranium Refinery and conversion plant PROCESS TYPE: Uranium is extracted from concentrates and converted into UF_6

DISCHARGE TYPE: Two discharge pipes at surface.

RECEIVING WATERBODY: DIRECT: Lake Ontario INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 9,360

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)	
Fluoride	1.31	14.0	
Radioactivity (Ra_{226})-Dissolved	0.03	0.37	becquerels/L (one discharge)
Uranium - Total			
Nitrogen - Ammonia			
Nitrates			

COMMENTS:

The refinery section of the plant; production of uranium oxide from uranium concentrates closed in July, 1983. The east uranium hexafluoride conversion plant closed in 1984 when the newly constructed west UF6 plant began production.

7561g/91
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000140608 MOE REGION: Southeast DISTRICT: Belleville

COMPANY NAME & PLANT LOCATION: Domtar Packaging
Trenton

INDUSTRIAL ACTIVITY: Paper board mill

PROCESS TYPE: Chips are made into pulp by a sodium carbonate cook; the pulp is formed into corrugating medium.

DISCHARGE TYPE: Continuous

RECEIVING WATERBODY: DIRECT: Trent River INDIRECT: Lake Ontario (Bay of Quinte)

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 1,840

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Biochemical Oxygen Demand	5,040	6,300
Suspended Solids - Total	417	1,200
Dissolved Solids - Total	9,300	

COMMENTS:

Effluent quality met Ministry guidelines for Biochemical Oxygen Demand and Total Suspended Solids.

7561g/92
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001750009 MOE REGION: Southeast DISTRICT: Belleville

COMPANY NAME & PLANT LOCATION: Trent Valley Paperboard Mills Trenton

INDUSTRIAL ACTIVITY: Paper board Mill

PROCESS TYPE: Wastepaper is repulped to form a paperboard.

DISCHARGE TYPE: Intermittent

RECEIVING WATERBODY: DIRECT: Trent River INDIRECT: Lake Ontario (Bay of Quinte)

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 3,200 *

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Biochemical Oxygen Demand		-
Suspended Solids - Total	880*	816
Dissolved Solids - Total	2990*	-

COMMENTS:

Mill is trying to operate in a closed cycle or zero effluent discharge. Mill has operated for up to ten days with no discharge.

* Flow values are questionable due to problems with company flow metering equipment. Piping changes in 1985 have addressed flow metering problems. Because 1984 Flows are questionable, Loading is also questionable. Plant has initiated BOD_5 testing in 1985.

7561g/93
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001740000 MOE REGION: Southeast DISTRICT: Kingston

COMPANY NAME & PLANT LOCATION: Strathcona Paper Company
Camden East Twp.

INDUSTRIAL ACTIVITY: Paper board Mill PROCESS TYPE: Wastepaper is repulped to form a paperboard.

DISCHARGE TYPE:

RECEIVING WATERBODY: DIRECT: Napanee River INDIRECT: Lake Ontario (Bay of Quinte)

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 3,620

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Biochemical Oxygen Demand	692	204 to 613 (See note 1)
Suspended Solids - Total	60.4	180

COMMENTS:

The Total Suspended Solids guideline was met. The Biochemical Oxygen Demand loading was not controlled during the summer months to comply with the permitted loadings. Both the permitted loadings and Strathcona's abatement program are being reviewed during 1985.

Note 1 - Permissable BOD_5 loadings are a function of Napanee River flows. Permitted loadings are detailed on Certificate of Approval #4-021-80-005 dated September 4, 1980.

7561g/94
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001730001 MOE REGION: Southeast DISTRICT: Kingston

COMPANY NAME & PLANT LOCATION: Celanese Canada Ltd. Ernestown Twp.

INDUSTRIAL ACTIVITY: Textile plant

PROCESS TYPE: Textiles are made from polyester fibre produced by the reaction of ethylene glycol and terephthalic acid

DISCHARGE TYPE:

RECEIVING WATERBODY: DIRECT: Lake Ontario INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 18,526

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Biochemical Oxygen Demand	391	-
Suspended Solids - Total	133	-
Chemical Oxygen Demand	690	544

COMMENTS:

Effluent quality did not meet loading requirements for COD. Abatement program and effluent quality under review.

7561g/95
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000080002 MOE REGION: Southeast DISTRICT: Kingston

COMPANY NAME & PLANT LOCATION: Dupont Canada Inc. Maitland

INDUSTRIAL ACTIVITY: Producer Automobile Fuel Additive PROCESS TYPE: Tetraethyl lead is made from a lead-sodium alloy and ethyl chloride.

DISCHARGE TYPE: Continuous

RECEIVING WATERBODY: DIRECT: St. Lawrence River INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 9,800

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Lead	18.6	10.0

COMMENTS:

Company continues to have difficulties in meeting effluent guideline; however, abatement measures to be implemented in 1984 will be evaluated to determine effectiveness. The company announced in May 1984 the shutdown of the plant by June 30, 1985. Lead in effluent will be reduced to zero discharge by June 30, 1986.

7561g/97
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000080002 MOE REGION: Southeast DISTRICT: Kingston

COMPANY NAME & PLANT LOCATION: Dupont Canada Inc. Maitland

INDUSTRIAL ACTIVITY: Producer Nylon Intermediates PROCESS TYPE: Chemicals are converted to raw materials for nylon manufacture.

DISCHARGE TYPE: Continuous

RECEIVING WATERBODY: DIRECT: St. Lawrence River INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 160,000

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
BOD	1665	2400

COMMENTS:

Waste treatment plant suspended solids effluent guidelines are under review by the Ministry.

7561g/96
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001710003 MOE REGION: Southeast DISTRICT: Kingston

COMPANY NAME & PLANT LOCATION: Nitrochem Inc. Maitland

INDUSTRIAL ACTIVITY: Nitrogen fertilizer plant PROCESS TYPE: Different grades of ammonia based fertilizer are made.

DISCHARGE TYPE: Continuous

RECEIVING WATERBODY: DIRECT: St. Lawrence River INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 1,964

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Nitrogen - Kjeldahl	1,365	98
Nitrates	875	39
Phosphorus	0.185	

COMMENTS:

The company continued to make changes which reduced the pollution load by more than 20% from 1982 levels. The company was given a time extension to the Amending Requirement and Direction for economic reasons. Compliance with concentration limits of 50 mg/L kjeldahl nitrogen and 20 mg/L nitrates is again under review due to economic reasons.

7561g/97
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001720002 MOE REGION: Southeast DISTRICT: Kingston

COMPANY NAME & PLANT LOCATION: Canada Starch Co. Ltd.
800 James Street
Cardinal

INDUSTRIAL ACTIVITY: Corn Processing PROCESS TYPE: Wet milling & oil refining processes

DISCHARGE TYPE:

RECEIVING WATERBODY: DIRECT: St. Lawrence River INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 3,020

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Suspended Solids - Total	1,890	*
Chemical Oxygen Demand (Filtered)	583	*

COMMENTS:

A consultant has been engaged by company to design an improved waste treatment facility, to reduce Total Suspended Solids, BOD and Phosphorus. Phosphorus sampling to be initiated as part of proposed order.

*Target load under review. 1984 TSS load exceeds existing requirement.

7561g/100
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001940006 MOE REGION: Southeast DISTRICT: Cornwall

COMPANY NAME & PLANT LOCATION: Kraft Foods Ltd.
Ingleside

INDUSTRIAL ACTIVITY: Cheesemaker PROCESS TYPE: Milk is made into cheese

DISCHARGE TYPE: continuous through a submerged diffuser

RECEIVING WATERBODY: DIRECT: Hoople Creek INDIRECT: 2.0 km to St. Lawrence River

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 2,000

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Phosphorus	12.2	2.0
Biochemical Oxygen Demand	60	30
Total Suspended Solids	87	-

COMMENTS:

Operational problems with treatment plant caused elevated levels of Biochemical Oxygen Demand, Total Suspended Solids, and Phosphorus. Company completing two projects to reduce the BOD load to the treatment plant and has undertaken some design changes to overcome these operational problems.

7561g/99
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0001900000 MOE REGION: Southeast DISTRICT: Cornwall

COMPANY NAME & PLANT LOCATION: Courtaulds Canada Ltd. Cornwall

INDUSTRIAL ACTIVITY: Rayon Manufacturer PROCESS TYPE: Dissolving sulphite pulp is reacted to form rayon

DISCHARGE TYPE: continuous through a diffuser shared with BCL

RECEIVING WATERBODY: DIRECT: St. Lawrence River INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 9,200

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Biochemical Oxygen Demand	2,740	1,045
Total Suspended Solids	660	750
Zinc	238	890
Sulphuric acid	9,900	-
*COD	6,450	-

Toxicity** - The #4, #5, #6 sewers was sampled 3 times during 1984 and tested by Aerated 96 hr. Rainbow trout bioassays (LC50 range of 0.3 - 10.0%). Rapid lethality in undiluted effluent: 100% mortality in less than 5 minutes.

COMMENTS:

Studies underway to assess effect of effluent on the river and to set new target loads. New control order or other enforcement action will follow completion of studies. Current target loads are based on earlier control order.
* COD load includes some contribution from BCL because of a shared sewer.

7561g/100
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: MOE REGION: Southeast DISTRICT: Cornwall

COMPANY NAME & PLANT LOCATION: BCL (formerly TCF) Cornwall

INDUSTRIAL ACTIVITY: Cellulose film maker PROCESS TYPE: Viscose supplied by Courtaulds is made into cellulose film.

DISCHARGE TYPE: continuous through a submerged diffuser shared with Courtaulds

RECEIVING WATERBODY: DIRECT: St. Lawrence River INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 5,700

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Biochemical Oxygen Demand	890	850
Total Suspended Solids	100	850
Sulphuric acid	5,800	5,100

COMMENTS:

Biochemical oxygen demand and sulphuric acid discharges slightly above target loads. Company doing further in-plant work in 1985 to achieve compliance.

7561g/101
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000140301 MOE REGION: Southeast DISTRICT: Cornwall

COMPANY NAME & PLANT LOCATION: Domtar Fine Papers CORNWALL

INDUSTRIAL ACTIVITY: Kraft Pulp and Paper Mill PROCESS TYPE: Fine paper is made from logs and chips by the kraft pulping process and from purchased pulp.

DISCHARGE TYPE: Continuous through a submerged diffuser

RECEIVING WATERBODY: DIRECT: St. Lawrence River INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 122,000

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Biochemical Oxygen Demand	19,000	19,500
Suspended Solids - Total	8,680	-
Dissolved Solids - Total	129,600	-

Toxicity - The final effluent was sampled 3 times during 1984 and tested by Aerated 96 hr. Rainbow trout bioassays (LC50 range of 55.1 - >100%) (Fifty per cent of fish survived effluent mixes consisting of 55.1% wastewater: 44.9% water to >100% wastewater: 0% water.)

COMMENTS:

The Biochemical Oxygen Demand guidelines was met. A production-based Total Suspended Solids limit will become effective June 30, 1987. Based on 1983 production this limit equates to a load of 6,600 kg/day. The company is working towards meeting this target load as specified in its Amending Control Order.

7561g/102
85/10/03

ONTARIO MINISTRY OF THE ENVIRONMENT
INDUSTRIAL MONITORING INFORMATION SYSTEM
WASTEWATER DISCHARGE SUMMARY
1984

IMIS NUMBER: 0000390401 MOE REGION: Southeast DISTRICT: Cornwall

COMPANY NAME & PLANT LOCATION: Canadian Industries Ltd. Cornwall

INDUSTRIAL ACTIVITY: Producer of caustic soda and chlorine gas

PROCESS TYPE: The mercury cell process is used to produce caustic and chlorine gas from salt.

DISCHARGE TYPE: Continuous through a submerged diffuser shared with Domtar.

RECEIVING WATERBODY: DIRECT: St. Lawrence River INDIRECT:

AVERAGE ANNUAL EFFLUENT FLOW (CUBIC METRES/DAY): 3,050

PARAMETER DESCRIPTION	LOAD (KG/DAY)	REQUIREMENT (KG/DAY)
Mercury	0.038	0.28

COMMENTS:

The effluent quality target load for mercury was met.

7561g/103
85/10/03

Appendix B
List of Sources by Drainage Basin

Company	Location	Page
LAKE SUPERIOR		
Abitibi-Price Inc.	(Ft. William), Thunder Bay	A-5
Abitibi-Price Inc.	(Provincial Mill), Thunder Bay	A-6
Abitibi-Price Inc.	(Thunder Bay Div.), Thunder Bay	A-7
Domtar Packaging Ltd.	Red Rock	A-8
Great Lakes Forest Products Ltd.	Thunder Bay	A-1
James River Marathon Ltd.	Marathon	A-10
Kimberly-Clark of Canada Ltd.	Terrace Bay	A-9
Ogilvie Mills Ltd.	Thunder Bay	A-2
Ontario Hydro (TGS) (Thunder Bay)	Thunder Bay	A-4
Reichhold Chemicals Ltd.	Thunder Bay	A-6
LAKE HURON		
Algoma Steel Corporation Ltd.	Sault Ste. Marie	A-11
Amerock Inc.	Meaford	A-26
Denison Mines Ltd.	Elliot Lake	A-13
Domtar Chemicals Ltd.	Goderich	A-30
E. B. Eddy Forest Products Ltd.	Espanola	A-17
Falconbridge Ltd.	Falconbridge	A-18
Falconbridge Ltd.	Onaping Falls	A-20
Falconbridge Ltd.	Moose Lake Wastewater Treatment	A-19
INCO Ltd. (Garson Mine)	Sudbury	A-21
INCO Ltd. (Copper Cliff Creek)	Sudbury	A-22
INCO Ltd. Sulphur Products Dept.	Sudbury	A-23
INCO Ltd. (Nolin Creek)	Sudbury	A-24
MacMillan Bloedel Ltd.	Sturgeon Falls	A-25
Ontario Hydro (Sewage Treatment)	Tiverton	A-27
Ontario Hydro (Heavy Water Plant)	Tiverton	A-28
Ontario Hydro (Thermal Data)	Tiverton	A-29
Rio Algom Ltd. (Panel Mill)	Elliot Lake	A-13
Rio Algom Ltd. (Quirke Mill)	Elliot Lake	A-14
Rio Algom Ltd. (Stanleigh Mill)	Elliot Lake	A-15
St. Marys Paper Inc.	Sault Ste. Marie	A-12
LAKE ERIE		
Allied Canada Inc.	Amherstburg	A-47
Canadian Industries Ltd.	Courtright	A-43

Company	Location	Page
Canadian Salt Company Ltd.	Windsor	A-45
Dow Chemical Canada Inc.	Sarnia	A-31
Dupont Canada Inc.	Corunna	A-38
Esso Chemicals Canada Ltd.	Sarnia	A-32
Esso Petroleum Canada	Sarnia	A-33
Ethyl Canada Inc.	Corunna	A-39
Fiberglas Canada Inc.	Sarnia	A-34
Ford Motor Company of Canada Ltd.	Windsor	A-46
Ford Motor Company of Canada Ltd.	St. Thomas	A-50
H. J. Heinz Company of Canada Ltd.	Leamington	A-48
INCO Metals Ltd.	Port Colborne	A-61
International Minerals and Chemicals	Dunnville	A-60
J. M. Scheider Inc.	Ayr	A-59
Omstead Food Ltd.	Wheatley	A-49
Ontario Hydro (Lambton)	Courtright	A-42
Ontario Hydro (Nanticoke)	Nanticoke	A-52
Ontario Hydro (Thermal Data)	Nanticoke	A-53
Petrosar Ltd.	Sarnia	A-35
Polysar Ltd.	Sarnia	A-36
Shell Canada Ltd.	Corunna	A-41
Silknit Ltd. Textile Division	Cambridge	A-55
Solarware	Cambridge	A-56
Stanley Works Ltd.	New Hamburg	A-58
Stelco Inc. Lake Erie Works	Nanticoke	A-54
Suncor Sunoco Group	Sarnia	A-37
Tend-R-Fresh Poultry	Petersburg	A-57
Texaco Canada Ltd. (Nanticoke Refinery)	Jarvis	A-51
Union Carbide Canada Ltd.	Corunna	A-40
Wickes Manufacturing Co. Ltd.	Windsor	A-44
LAKE ONTARIO		
Atlas Steel Company	Welland	A-66
B. F. Goodrich	Niagara Falls	A-69
Borg-Warner Chemicals Ltd.	Cobourg	A-89
Beaver Wood Fibre Company	Thorold	A-78
Canadian Canners Ltd.	St. Davids	A-74
Canadian Oxy-Durez	Fort Erie	A-62
Celanese Canada Ltd.	Ernestown Township	A-96
Cyanamid Canada Inc.	Welland (fertilizer plant)	A-71
Cyanamid Canada Inc.	Niagara Falls (chemicals)	A-68

Company	Location	Page
Dofasco	Hamilton	A-82
Domtar Construction Materials Ltd.	Thorold	A-81
Domtar Fine Papers	St. Catharines	A-76
Domtar Packaging Ltd.	Trenton	A-93
Eldorado Nuclear Ltd.	Port Granby	A-91
Eldorado Nuclear Ltd.	Welcome	A-90
Eldorado Nuclear Ltd.	Port Hope	A-92
Fleet Manufacturing Company Ltd.	Fort Erie	A-64
Ford Motor Co. of Canada Ltd.	Oakville	A-84
Ford Motor Company of Canada Ltd.	Niagara Falls	A-70
Fraser Inc.	Thorold	A-80
General Motors of Canada Ltd.	St. Catharines	A-75
GNB Batteries Canada Inc.	Fort Erie	A-63
Gulf Canada Products Ltd.	Mississauga	A-87
Kimberly Clark of Canada Ltd.	St. Catharines	A-77
Norton Company	Niagara Falls	A-72
Ontario Hydro (Lakeview)	Toronto	A-88
Ontario Paper Company Inc.,	Thorold	A-79
Petro Canada Products Ltd.	Oakville	A-85
Sohio	Niagara Falls	A-73
Stelco Inc.	Hamilton	A-83
Stelco Page Hersey Works	Welland	A-67
Stelco Welland Tube Works	Welland	A-65
Strathcona Paper Company	Camden East Township	A-95
Texaco Canada Ltd.	Port Credit	A-86
Trent Valley Paperboard Mills	Trenton	A-94
ST. LAWRENCE RIVER		
BCL (Formerly TCF)	Cornwall	A-103
Canadian Industries Ltd.	Cornwall	A-105
Canada Starch Co. Ltd.	Cardinal	A-100
Courtaulds - Ltd.	Cornwall	A-102
Domtar Fine Papers	Cornwall	A-104
Dupont Canada Inc. (TEL)	Maitland	A-97
Dupont Canada Inc. (Nylon Intermed.)	Maitland	A-98
Kraft Foods Ltd.	Ingleside	A-101
Nitrochem Inc.	Maitland	A-99

Appendix C
Alphabetical List of Sources

Company	Location	Basin	Page
Abitibi-Price Inc.	(Fort William Div.), Thunder Bay	Lake Superior	A-5
Abitibi-Price Inc.	(Provincial Papers Div.), Thunder Bay	Lake Superior	A-6
Abitibi-Price Inc.	(Thunder Bay Div.), Thunder Bay	Lake Superior	A-7
Algoma Steel Corporation Ltd.	Sault Ste. Marie	Lake Huron	A-11
Allied Canada Inc.	Amherstburg	Lake Erie	A-47
Amerock Inc.	Meaford	Lake Huron	A-26
Atlas Steel Company	Welland	Lake Ontario	A-66
BCL (Formerly TCF)	Cornwall	St. Lawrence R.	A-103
B. F. Goodrich	Niagara Falls	Lake Ontario	A-69
Beaver Wood Fibre Company	Thorold	Lake Ontario	A-78
Borg-Warner Chemicals Ltd.	Cobourg	Lake Ontario	A-89
Can Oxy-Durez	Fort Erie	Lake Ontario	A-62
Canada Starch Co. Ltd.	Cardinal	St. Lawrence River	A-100
Canadian Canners Ltd.	St. Davids	Lake Ontario	A-74
Canadian Industries Ltd.	Cornwall	St. Lawrence River	A-105
Canadian Industries Ltd.	Courtright	Lake Erie	A-43
Canadian Salt Company Ltd.	Windsor	Lake Erie	A-45
Celanese Canada Ltd.	Ernestown Township	Lake Ontario	A-96
Courtaulds - Ltd.	Cornwall	St. Lawrence River	A-102
Cyanamid Canada Inc.	Niagara Falls	Lake Ontario	A-68
Cyanamid Canada Inc.	Niagara Falls (chemicals)	Lake Ontario	A-71
Denison Mines Ltd.	Elliot Lake	Lake Huron	A-13
Dofasco	Hamilton	Lake Ontario	A-82
Domtar Chemicals Ltd.	Goderich	Lake Huron	A-30
Domtar Construction Materials Ltd.	Thorold	Lake Ontario	A-81
Domtar Fine Papers	Cornwall	St. Lawrence River	A-104
Domtar Fine Papers	St. Catharines	Lake Ontario	A-76
Domtar Packaging Ltd.	Trenton	Lake Ontario	A-3
Domtar Packaging Ltd.	Red Rock	Lake Superior	A-8
Dow Chemical Canada Inc.	Sarnia	Lake Erie	A-31
Dupont Canada Inc. (TEL)	Maitland	St. Lawrence River	A-97
Dupont Canada Inc. (Nylon Intermed.)	Maitland	St. Lawrence River	A-98
Dupont Canada Inc.	Corunna	Lake Erie	A-38
E. B. Eddy Forest Products Ltd.	Espanola	Lake Huron	A-17
Eldorado Nuclear Ltd.	Port Granby	Lake Ontario	A-91

Company	Location	Basin	Page
Eldorado Nuclear Ltd.	Welcome	Lake Ontario	A-90
Eldorado Nuclear Ltd.	Port Hope	Lake Ontario	A-92
Esso Chemicals Canada Ltd.	Sarnia	Lake Erie	A-32
Esso Petroleum Canada	Sarnia	Lake Erie	A-33
Ethyl Canada Inc.	Corunna	Lake Erie	A-39
Falconbridge Ltd. (Moose Lake)	Falconbridge	Lake Huron	A-19
Falconbridge Ltd.	Falconbridge	Lake Huron	A-18
Falconbridge Ltd.	Onaping Falls	Lake Huron	A-20
Fiberglas Canada Inc.	Sarnia	Lake Erie	A-34
Fleet Manufacturing Company Ltd.	Fort Erie	Lake Ontario	A-64
Ford Motor Co. of Canada Ltd.	Oakville	Lake Ontario	A-84
Ford Motor Company of Canada Ltd.	Niagara Falls	Lake Ontario	A-70
Ford Motor Company of Canada Ltd.	St. Thomas	Lake Erie	A-50
Ford Motor Company of Canada Ltd.	Windsor	Lake Erie	A-46
Fraser Inc.	Thorold	Lake Ontario	A-80
General Motors of Canada Ltd.	St. Catharines	Lake Ontario	A-75
GNB Batteries Canada Inc.	Fort Erie	Lake Ontario	A-63
Great Lakes Forest Products Ltd.	Thunder Bay	Lake Superior	A-1
Gulf Canada Products Ltd.	Mississauga	Lake Ontario	A-87
H. J. Heinz Company of Canada Ltd.	Leamington	Lake Erie	A-48
INCO Ltd. (Garson Mine)	Sudbury	Lake Huron	A-21
INCO Ltd. (Copper Cliff Creek)	Sudbury	Lake Huron	A-22
INCO Ltd. Sulphur Products Dept.	Sudbury	Lake Huron	A-23
INCO Ltd. (Nolin Creek)	Sudbury	Lake Huron	A-24
INCO Metals Ltd.	Port Colborne	Lake Erie	A-61
International Minerals and Chemicals	Dunnville	Lake Erie	A-60
J. M. Schneider Inc.	Ayr	Lake Erie	A-59
James River Marathon Ltd.	Marathon	Lake Superior	A-10
Kimberly Clark of Canada Ltd.	St. Catharines	Lake Ontario	A-77
Kimberly-Clark of Canada Ltd.	Terrace Bay	Lake Superior	A-9
Kraft Foods Ltd.	Ingleside	St. Lawrence River	A-101
MacMillan Bloedel Ltd.	Sturgeon Falls	Lake Huron	A-25
Nitrochem Inc.	Maitland	St. Lawrence River	A-99
Norton Company	Niagara Falls	Lake Ontario	A-72
Ogilvie Mills Ltd.	Thunder Bay	Lake Superior	A-2
Omstead Food Ltd.	Wheatley	Lake Erie	A-49

Company	Location	Basin	Page
Ontario Hydro (Domestic Treatment)	Tiverton	Lake Huron	A-27
Ontario Hydro (Heavy Water Plant)	Tiverton	Lake Huron	A-28
Ontario Hydro (Thermal Data)	Tiverton	Lake Huron	A-29
Ontario Hydro (TGS)	Nanticoke	Lake Erie	A-52
Ontario Hydro (Thermal Data)	Nanticoke	Lake Erie	A-53
Ontario Hydro (TGS) (Lakeview)	Toronto	Lake Ontario	A-88
Ontario Hydro (TGS) (Lambton)	Courtright	Lake Erie	A-42
Ontario Hydro (TGS) (Thunder Bay)	Thunder Bay	Lake Superior	A-4
Ontario Paper Company Inc.	Thorold	Lake Ontario	A-79
Petro Canada Products Ltd.	Oakville	Lake Ontario	A-85
Petrosar Ltd.	Sarnia	Lake Erie	A-35
Polysar Ltd.	Sarnia	Lake Erie	A-36
Rio Algom Ltd. (Panel Mill)	Elliot Lake	Lake Huron	A-13
Rio Algom Ltd. (Quirke Mill)	Elliot Lake	Lake Huron	A-14
Rio Algom Ltd. (Stanleigh Mill)	Elliot Lake	Lake Huron	A-15
Reichhold Chemicals Ltd.	Thunder Bay	Lake Superior	A-6
Shell Canada Ltd.	Corunna	Lake Erie	A-41
Silknit Ltd. Textile Division	Cambridge	Lake Erie	A-55
Sohio	Niagara Falls	Lake Ontario	A-73
Solarware	Cambridge	Lake Erie	A-56
St. Marys Paper Inc.	Sault Ste. Marie	Lake Huron	A-12
Stanley Works Ltd.	New Hamburg	Lake Erie	A-58
Stelco Inc.	Hamilton	Lake Ontario	A-83
Stelco Inc. Lake Erie Works	Nanticoke	Lake Erie	A-54
Stelco Page Hersey Works	Welland	Lake Ontario	A-67
Stelco Welland Tube Works	Welland	Lake Ontario	A-65
Strathcona Paper Company	Camden East Township	Lake Ontario	A-95
Suncor Sunoco Group	Sarnia	Lake Erie	A-37
Tend-R-Fresh Poultry	Petersburg	Lake Erie	A-57
Texaco Canada Ltd.	Port Credit	Lake Ontario	A-86
Texaco Canada Ltd. (Nanticoke Ref.)	Jarvis	Lake Erie	A-51
Trent Valley Paperboard Mills	Trenton	Lake Ontario	A-94
Union Carbide Canada Ltd.	Corunna	Lake Erie	A-40
Wickes Manufacturing Co. Ltd.	Windsor	Lake Erie	A-44

Appendix D

Ontario Ministry of the Environment
Regional Offices

The Director
Southwest Region
985 Adelaide Street South
LONDON, Ontario

The Director
West Central Region
119 King Street West
12th Floor
HAMILTON, Ontario

The Director
Central Region
7 Overlea Blvd
4th Floor
TORONTO, Ontario
M4H 1A8

The Director
Southeastern Region
133 Dalton Street
P. O. Box 820
KINGSTON, Ontario

The Director
Northeastern Region
199 Larch Street
SUDBURY, Ontario

The Director
Northwestern Region
435 James Street South
P.O.Box 5000
THUNDER BAY, Ontario

Ontario Ministry of the Environment
District Offices

Halton-Peel District Office
1226 White Oaks Blvd.
Oakville, Ontario
L6H 2B9

Peterborough District Office
139 George Street North
Peterborough, Ontario
K9J 3G6

North Bay District Office
Northgate Plaza
1500 Fisher Street
North Bay, Ontario
P1B 2H3

Sault Ste Marie District Office
445 Albert Street East
Sault Ste Marie, Ontario
P6A 2J9

Sudbury District Office
11th Floor, 199 Larch Street
Sudbury, Ontario
P5E 5P9

Thunder Bay District Office
P.O. Box 5000
3rd Floor, 435 James Street South
Thunder Bay, Ontario
P7C 5G6

Cornwall District Office
2nd Floor, 4 Montreal Road
Cornwall, Ontario
K6H 1B1

Kingston District Office
P.O. Box 820
133 Dalton Avenue
Kingston, Ontario
K7L 4X6

Owen Sound District Office
1180 - 20th Street
Owen Sound, Ontario
N4K 6H6

Sarnia District Office
Suite 109, 265 Front Street
Sarnia, Ontario
N7T 7X1

Windsor District Office
6th Floor, 250 Windsor Avenue
Windsor, Ontario
N9A 6V9

Cambridge District Office
P.O. Box 219
400 Clyde Road
Cambridge, Ontario
N1R 5T8

Hamilton District Office
Box 2112
9th Floor, 119 King Street West
Hamilton, Ontario
L8N 3Z9

Welland District Office
637 - 641 Niagara North
Welland, Ontario
L3C 1L9